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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1991

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

S. 2884

AUTHORIZING APPROPRIATIONS FOR FISCAL YEAR 1991 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR FOR THE ARMED FORCES AND FOR OTHER PURPOSES

PART 3

CONVENTIONAL FORCES AND ALLIANCE DEFENSE

APRIL 25, 27; MAY 2, 1990

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CONTENTS

CHRONOLOGICAL LIST OF WITNESSES

THE ARMY'S MODERNIZATION PLANS IN THE CONTEXT OF PROJECTED FORCE STRUCTURE CHANGES

APRIL 25, 1990

	Page
Conver, Steven K., Assistant Secretary of the Army for Research, Development, and Acquisition	3
Pihl, Gen. Donald, USA, Military Deputy to the Assistant Secretary of the Army for Research, Development, and Acquisition, accompanied by Gen. Peter M. McVey, Program Executive	14

THE AIR FORCE'S FORCE STRUCTURE AND MODERNIZATION PLANS

FRIDAY, APRIL 27, 1990

Hawley, Maj. Gen. Richard E., USAF, Director of Operations, Office of the Deputy Chief of Staff for Plans and Operations; accompanied by Maj. Gen. John E. Jaquish, USAF, Director, Tactical Programs, Office of the Assistant Secretary of the Air Force for Acquisition	75

DEPARTMENT OF THE NAVY'S FORCE STRUCTURE AND MODERNIZATION PLANS

MAY 2, 1990

Dunleavy, Vice Adm. R.M., USN, Assistant Chief of Naval Operations (Air Warfare) Department of the Navy; accompanied by Lt. Gen. Charles H. Pitman, USMC, Deputy Chief of Staff for Aviation, U.S. Marine Corps; and Vice Adm. Richard C. Gentz, Commander, Naval Air Systems Command	114

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1991

WEDNESDAY, APRIL 25, 1990

U.S. SENATE,
SUBCOMMITTEE ON CONVENTIONAL FORCES
AND ALLIANCE DEFENSE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE ARMY'S MODERNIZATION PLANS IN THE CONTEXT OF PROJECTED FORCE STRUCTURE CHANGES

The subcommittee met, pursuant to notice, at 9:37 a.m., in room SR-222, Russell Senate Office Building, Senator Carl Levin (chairman of the subcommittee) presiding.

Committee members present: Senators Levin, Dixon, Shelby, Thurmond, and Wilson.

Committee staff members present: Daniel G. Sakura, research assistant; and Lucia M. Chavez, security control officer.

Professional staff members present: John J. Hamre.

Minority staff members present: Romie L. Brownlee, deputy staff director for the minority; George W. Lauffer and Durwood W. Ringo, Jr., professional staff members.

Staff assistants present: Barbara Gallo, Lisa B. Hastey, and Cindy Pearson.

Committee members' assistants present: Kenneth N. Luongo, assistant to Senator Levin; Charles C. Smith, assistant to Senator Dixon; Milton D. Beach, assistant to Senator Glenn; Terence M. Lynch, assistant to Senator Shelby; James M. Bodner, assistant to Senator Cohen; Patrick F. McCartan, assistant to Senator Wilson; Anthony H. Cordesman and Marshall A. Salter, assistants to Senator McCain; Charles G. Pearcy, assistant to Senator Lott; and Eric H. Thoemmes, assistant to Senator Coats.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Senator LEVIN. Good morning everybody. This morning the Subcommittee on Conventional Forces and Alliance Defense meets to review the fiscal year 1991 budget request. As all of my colleagues know, the subcommittee has the responsibility for oversight of our military commitment in NATO and for research and development and procurement programs intended to outfit our conventional forces assigned to NATO. I believe it is fair to say that no other subcommittee is confronted by such far-reaching changes as is our subcommittee. NATO and the U.S. conventional forces face a far

different future today than they did 3 years back when I became chairman of this subcommittee.

The tasks that we face as a subcommittee are great. I am pleased to have members on this subcommittee who have demonstrated their commitment and willingness to deal with difficult issues. Senator Wilson, my ranking Republican, has been a strong and effective leader for the minority members of this subcommittee and for the subcommittee in general. I am pleased to be able to work with him again this year.

Last week Senator Nunn completed his series of speeches on the changes in the threat, the development of a new strategy, and the outlines of the budgetary implications of that strategy. He specifically has asked each of the subcommittees to evaluate his concepts and proposals in our areas of jurisdiction. Our subcommittee will have a major role in reviewing, revising, and, I hope, implementing some of those concepts and ideas. Undoubtedly, we will need to schedule follow-up hearings in this regard.

Today the subcommittee will receive testimony on the Army's modernization programs in the context of projected force structure changes. The Army of the future will be quite different from the Army of the past two decades. The major modernization programs predate the changes of the past 2 years. We still need to proceed with those programs and under what schedule as the Army shifts to more of a contingency mission.

There are many key questions that the subcommittee will have to evaluate, including the following: how well suited are the modernization programs for outfitting those contingency forces with lighter, more lethal and survivable equipment? What role will the Reserve components have in the future? How well-equipped are they to do that? As the Active Army shrinks, what is going to happen with the equipment that will be released as divisions are deactivated?

We have a number of familiar witnesses with us for today's hearing. For two of them at least it is a landmark hearing. It is the first time that Steve Conver testifies as Assistant Secretary of the Army for Research, Development, and Acquisition. From the reports we have, you are doing an excellent job in the Pentagon, and I know the committee is pleased with your efforts today.

General Don Pihl has testified many times before this subcommittee, and I believe this may be one of the last times, if not the last time, that he testifies before Congress before his retirement in June. You have distinguished yourself, General, as one of the Army's most able officers. Your advice has been influential both within the Pentagon and on Capitol Hill. You have served your country in many capacities. The Nation is very much indebted to you, General Pihl, for all that you have done, and this committee is very much in your debt for your contributions to our work. We wish you all the best in your new career.

General PIHL. Thank you, sir.

Senator LEVIN. I would have been more flowery than that, by the way, if you had decided to retire to Michigan instead of California. [Laughter.]

Senator Wilson is unavoidably delayed this morning. We had scheduled this at a time when he thought he could make it, but he

had to testify at this hour at a hearing on the House side. We expect that he will be here sometime after 10 a.m. We do have with us an old friend and a great member of this committee, Senator Strom Thurmond. Senator Thurmond, we will turn to you for your opening statement.

Senator THURMOND. Thank you very much, Mr. Chairman. Mr. Chairman, it is a pleasure to join you and Senator Wilson in welcoming Secretary Conver and General Pihl. Over the past several years, General Pihl has worked closely with this subcommittee. During that time his professionalism and candor have earned him the respect of this committee. More importantly, his ability has benefited our Nation and its soldiers. Since this will be his last hearing before this subcommittee, I want to recognize him for his accomplishments and wish him and his family the best in his retirement.

Mr. Chairman, as we enter the last decade of this century, the Army will be facing radical changes in both mission and force structure. Over the past 40-plus years, its focus has been primarily on the Soviet conventional threat in Europe, a threat which has virtually ceased to exist over the last 8 months. The goal now is to mold an Army for the future and yet not destroy the good things that have been built up over the past decade.

Many of the planes and equipment that are in development may no longer be appropriate. Before we throw out the baby with the bath water, however, we need to take a careful and comprehensive look at what our Nation wants from the Army of the future.

Mr. Chairman, I compliment you for focusing the first subcommittee hearing of this session on the Army. I believe it is symbolic of the importance that this committee places on the Army's role on the conventional battlefield of the future. Thank you, Mr. Chairman.

Senator LEVIN. Thank you, Senator Thurmond. Secretary Conver, please proceed.

STATEMENT OF STEVEN K. CONVER, ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

Mr. CONVER. Thank you, Mr. Chairman and Senator Thurmond. It is our pleasure to be here today before your subcommittee.

I am very grateful for your kind remarks about General Pihl. Although I have been in my present job for only about 7 weeks now, I have known Don Pihl for a long time in my previous experience in the lower body. Everything that you have said about General Pihl I would certainly echo. I think he deserves a reputation of perhaps being called the Father of Army Acquisition because he has been involved in this business for a very long time. In his 31-year career he has also been quite a warrior for the Army, which is something that is perhaps lesser known to the members. We are all going to miss Don Pihl, and I very much appreciate your kind remarks on his behalf.

I would also like to introduce our other supporting witness here whom you both know, General Pete McVey, who is our Program Executive Officer for Armored Systems Modernization. We are an-

ticipating some of the interest that the subcommittee might have in inviting Pete to join us this morning.

Senator LEVIN. I failed to mention you by name, General McVey. You have also been a great help to this subcommittee. We are delighted you are here, Pete.

General MCVEY. Thank you, sir.

Mr. CONVER. General Pihl and I have submitted statements, and with your permission, sir, we would ask that those be inserted into the record.

Senator LEVIN. They will be.

Mr. CONVER. Don and I would both like to make very brief remarks in support of those statements. Sir, I would like to say a few words about the Army's research, development, and acquisition budget from the perspective of our strategy and our funding limitations. In my prior job on the House Armed Services Committee, I often heard it said in that committee, and I guess I have heard it said over here as well, that the DOD has a lot of money and not very much strategy. Perhaps at one time there was an arguable case that that was true, but I can assure you that in today's Army that is most assuredly not true. We have very much the opposite problem. I think we have a wonderful strategy, but we have very few dollars, at least in the RDA portion of the budget, with which to execute that strategy.

Now the strategy that we have, I think, is attributable to our Chief of Staff, General Vuono, who has taken the lead in putting forth a number of important strategy positions delineating his and the Secretary's ideas of what the Army of the future is going to look like. I am sure you have heard his presentation before the full committee in which he describes the six imperatives for the Army. One of those imperatives involves modernization of the Army, and that is the one that we would like to deal with today.

Expanding upon the Chief's strategy, I would suggest to you that there are six principles that are implied for the Army's approach to modernizing its forces. I would just like to say a few brief words about those. One of the principles which you alluded to in your earlier statement is lethality. We are going to have a smaller Army, and we are going to have a lighter Army, but we consider it important that we maintain the lethality of our forces at least to a level that is competitive with any threats that we might face in any possible endeavor.

I guess my personal feeling is that if there is one area in which we cannot afford to lose our edge technologically or in terms of fielded systems, it is in lethal systems. If our budget gets reduced to the point where we are buying very, very limited numbers of things, I would argue that the last things that we should be abandoning would be the lethal systems because they are the ones that ultimately have to be brought to bear against a potential enemy.

The second principle of our modernization which you also alluded to is versatility. It is important that in an era of declining budgets our forces be able to operate across the entire spectrum of conflict between high intensity conflict on the one hand to special operations, drug interdiction, and counter-terrorist operations on the other. We consider that important.

Third is deployability. As we move to lighter forces, we have to make sure that we can move those forces anywhere in the world they might be needed in contingency operations, so deployability is very important. That manifests itself in several ways. For our aviation systems we tend to favor those that are self-deployable or readily deployable by fixed wing aircraft; but in any case, I think this tends to drive us toward lighter systems to enhance deployability.

If you look at these first three principles—lethality, versatility, and deployability—my view as the new Assistant Secretary for RDA is that we should apply these as criteria in terms of deciding whether or not a new system should be approved. If it is not lethal, deployable, or versatile, I would argue that we should be very suspect of it.

The fourth principle of modernization is that we have elected to protect our tech base in the face of very strong, large cuts in our overall acquisition. In the budget you had before you, we had protected our tech base with 2 percent real growth, and that was in the face of very large cuts in procurement.

The last two principles of our modernization are ones that I think are more controversial and perhaps things that will be discussed this morning. Fifth, we have made a conscious decision largely driven by dollar limitations to accept near term risk in our acquisition of weapons systems and to postpone the procurement of certain classes of systems into the midterm.

The final principle of our modernization is that we will try in every way we can to protect the industrial base, recognizing that there will be some difficulty doing this as our forces wind down.

Continuing on the subject of strategy versus dollars, I guess the key issue is, does the Army research, development, and acquisition budget reflect some grand strategy, or is it simply dollar driven? I think the answer to that is both. We have a good strategy, but the dollars are really driving a lot of the things we are doing, and we are being forced to do a lot of things that we do not want to do. Fortunately, in the strategy that we have in place, the Chief of Staff's six imperatives allow us to make what we think are the best possible decisions because we do have a strategy underpinning that applies no matter how low the dollars get.

Before concluding, let me just mention a couple of dollar facts to you to put the Army RDA budget in some perspective. Our procurement budget is $10.6 billion. That is a 28 percent reduction or about a $4 billion reduction from just 2 years ago. That is a significant reduction. Our R&D budget we are trying to hold with modest real growth presently at $6 billion. So we have a total of Army RDA funding of $16.6 billion. To put that in perspective, our sister services in procurement alone each have in excess of $30 billion. So our total R&D plus procurement is less than half the procurement budgets of our sister services.

Another thing that helps put our dollars in perspective, if one were to look at a list of the top 20 dollar systems in the 1991 budget, there are only three Army systems in that list of the top 20, and they appear at numbers 15, 17, and 19. So that, to me, is a telling indicator.

Frankly, Mr. Chairman, with the cuts that are going on in the DOD top line and the way that ripples down to the Army, I think we are in serious danger of going out of the business of procuring major items of equipment. Once we get much below about $10 billion, it seems to me that our ability to procure tanks and helicopters and major air defense systems and items of that type is jeopardized to a very large degree, and if the trend is not halted at some point we may find ourselves in the business of procuring uniforms, ammunition, meals-ready-to-eat, and that is about it. Our major systems will be really jeopardized.

Our top R&D priorities are the Light Helicopter (LH) program and the Armored Systems Modernization (ASM) program, both of which I am sure you are very interested in. I would say in asking you to terminate the current production of helicopters and tanks and to contemplate approval of these programs in the future, we are asking you to do two things that are very difficult politically. The first is to terminate current production. That is always a difficult political decision. Second is to support new starts in the declining budget environment. That is also a difficult political decision. We recognize the political difficulties that these decisions create, but I would argue we have been forced into these by the affordability considerations. We really do not have too much choice.

I assure you, Mr. Chairman, that we are trying to manage these acquisition challenges in a reasonable way with ever decreasing dollars, and we look forward to working with you and the subcommittee and the full committee in terms of trying to chart the Army's acquisition course for the future. I thank you for your patience.

[The prepared statement of Mr. Conver follows:]

STATEMENT BY

MR. STEPHEN K. CONVER

ASSISTANT SECRETARY OF THE ARMY FOR

RESEARCH, DEVELOPMENT AND ACQUISITION

Mr. Chairman, members of the committee; it is a privilege for us to appear before you to discuss our plans for Force Modernization in the context of our FY 1991 budget request. With me today is Lieutenant General Don Pihl, my Military Deputy.

We have provided you a formal statement entitled "Equipping the US Army" and two record statements. I would appreciate all of these being placed in the record. I also have brief remarks I would like to make, but first I ask a moment of the committee's time to allow me to pay tribute to the gentleman with me today. As you may know, General Pihl has announced his retirement for June of this year after 31 years of faithful and arduous service to the Army and our nation. I have greatly admired General Pihl and believe his technical competence, candor and frank opinions have given him tremendous credibility with the Army, industry and, most of all, with the Congress. Hopefully you will join me in thanking him for his superb service to our nation's defense and in wishing him the very best in his future endeavors.

Our Procurement budget request for Fiscal Year 1991 is for 10.6 billion dollars; our associated Research, Development, Test and Evaluation request is for 6.0 billion dollars; for a total RDA request of 16.6 billion dollars. This request represents a commitment to continued modernization of our forces, while maintaining a robust R&D program, in a time of reduced resources. This commitment is one of the tenets of our current thinking on how to maintain the Army as a viable deterrent, capable of fighting and winning if called on to do so. I would like to begin my remarks by explaining a little

about our current thinking and how it differs from the recent past.

Mr. Chairman, as a former member of the House Armed Services staff, I often heard it asserted that the Department of Defense had lots of money and no underlying policy and strategy. I believe I can state with some confidence that Army acquisition suffers from precisely the opposite problem - we have a grand strategy, but very limited (and ever-declining) resources with which to carry out that strategy. I believe the Army, perhaps more than any other service, has a comprehensive strategy for the 1990's and beyond including the modernization of its forces. The credit for this strategy must go to the Chief of Staff, General Vuono, who has been the driving force in developing a clearly-focused strategy for the Army. General Vuono has also insisted that our modernization plans support that strategy.

Under General Vuono's strategy, which our Secretary Mike Stone heartily endorses, the Army of the future will be shaped by the strategic environment, the national military strategy, our doctrine and (finally) by the resources that are available to us.

The diminishing Soviet threat in Central Europe has required us to rethink our modernization plans. In this environment it would be naive not to anticipate a long term decline in available resources. Therefore, we have undertaken to reshape our modernization efforts to ensure we structure an Army for the mid 1990's and beyond that will meet the requirements of the national military strategy within the limits of those resources we anticipate being available.

As discussed in the Army Posture Statement and "Equipping the US Army" the Army has developed six imperatives. One of these is the need for continued modernization. In shaping our modernization plans, the Army strategy is to equip our forces with equipment that has three essential qualities. First, they

must be deployable; as we reduce the number of deployed forces around the world and drawdown the CONUS force structure, the remaining forces must be capable of worldwide deployment with all equipment needed to be an effective fighting force and they must be able to do it quickly with relatively little notice. This necessitates equipment which is easily deployable and in some cases, such as Light Helicopter, self deployable.

Secondly our forces must be versatile. They must be able to respond to a broad range of possible conflicts and contingencies; they must be able to operate in low, mid and high intensity conflicts as well as contingency operations and special operations to include unique missions in support of drug interdiction operations. This broad range of possible conflict makes it ill-advised to procure single purpose equipment and dictates equipment that is equally versatile.

Thirdly, and most importantly, the equipment must be lethal. No longer can we expect to have redundant systems and capabilities. Weapons designed to destroy targets must do exactly that, without reliance on back-ups or multiple engagements; first round kills must be the norm. Let me make one point very clear on the importance of lethal systems, and I would clarify that this is a personal viewpoint. There may be areas where we can accept military risk in the short-term, but we should never allow our soldiers to go into any engagement where their lethal systems are overmatched by an adversary.

In the RDA arena, we have expanded the deployability, versatility and lethality criteria into four principles that will guide our modernization decisions. First, our weapons systems must possess lethality and survivability at least competitive with the threat. Second, we must maintain a strong technology base. Third, we must develop and maintain equipment that will be effective across the full spectrum of conflict from full-scale conventional conflict to special operations,

antiterrorist operations, and drug interdiction. Fourth, and finally, we will concentrate our investment on future systems and accept some near term risk. Translated to action, this means we will protect our key future modernization systems such as LH and Armored Systems Modernization programs; we will terminate some current major weapons systems rather than stretch them out; and we will avoid substantial investment in product improvements and modifications in favor of investment in new technologies. In our new developments we will reduce, if not eliminate, redundancy in capabilities, and we will, in some cases develop tech data packages and defer production of the system. Where we do proceed to production we may prove out the production line and then suspend production, as we intend to do with the M1A2. When full production is warranted and affordable we will field only to the level required for deterrence.

Thus, in the adjusted program we have sent to the Congress you will see: a strong investment in the tech base; emphasis on new technology armor, antiarmor and aviation systems; improved intelligence systems and sensors; advanced aerial and air defense capabilities; and emphasis on replacing the aged tactical transport truck fleet.

We want to emphasize that our strategy focuses on long term solutions which accept some short- and mid-term risk. To this end we have protected our RDT&E account. I must emphasize, however, that we have chosen to reduce our Army procurement account from nearly 15 billion dollars in FY89 to 10.6 billion dollars in our FY91 request, a reduction of nearly 30%. I would further emphasize that we did not make this substantial procurement reduction because of some grand strategy design. Let there be no misunderstanding: we cut our procurement amount because our dollars were cut. In this regard, as you debate and mark our budget request, I would hope that you will give due consideration to the Army share of the DoD request and note as I have that there is a service whose RDTE budget is larger than

the Army's procurement request.

Fortunately (if one can use that term in the context of a 30% procurement reduction), the Army had strategy and policy in place that allowed us to make those cuts in what we considered the most sensible way. We achieved the reduction by terminating tank production, terminating Apache production, completion of the Mobile Subscriber Equipment buy, and by making substantial reductions in ammunition procurement and a number of smaller programs. Given these sacrifices, there should be no doubt of the extreme importance the Army places on our long-range goals, nor of the confidence we have in our strategy.

Before I introduce General Pihl, who will discuss specifics of several of our major programs, I would like to say a few words about the two top priority R&D programs in the Army, both of which have serious procurement implications, now and in the future. The systems are the Light Helicopter and the Armored Systems Modernization programs. Frankly, I believe the Army has taken some risk in this area. I do not believe the decisions are unwise in light of the budgetary considerations nor do I believe they result in unacceptable security risk in view of the threat. I do believe they are politically risky in that we are asking the Congress to approve two difficult proposals. First, we are asking the Congress to shutdown warm tank and attack helicopter production lines.

Secondly, and perhaps more challenging, we will be asking the Congress to approve a series of "new production starts" in the mid-1990's. I have no illusions that the budget environment for defense will be any more favorable in the mid-90s than it is right now. Given more dollars, we would prefer to preserve the industrial base in the near-term by continuing production of tanks and helicopters and then make a smooth transition into the next generations of these systems. Unfortunately, the declining dollars have forced us to make short-term sacrifices in production and place our hopes on the willingness of the

Congress to restart tank and helicopter production after a pause of several years.

The LH remains the Army's number one R&D priority. LH is the system that will take Army aviation into the 21st century. Development and ultimately procurement of the LH is consistent with the strategy underlying our modernization plans and meets modernization criteria. LH will be versatile, capable of supporting operations in low, mid and high intensity conflicts as well as special operations and drug interdiction; it will be deployable, not only on Air Force transports, but also self-deployable to Europe; and it will be lethal in all roles, in the air to ground, air to air and antiarmor role.

I have not been on this job long enough to assure the subcommittee that all details of the LH program are as they should be, but I have no reluctance to say that the Army will need a lethal, versatile and deployable scout/attack helicopter in the near-future. I would make only one other point to the subcommittee and that concerns cost. Last week Secretary Stone appeared before the House Committee on Energy and Commerce, Subcommittee on Oversight and Investigations to answer their questions on the AH-64 Apache. The Apache is a great helicopter of which we are very proud. It has however presented several challenges in the area of reliability and maintainability. Secretary Stone was questioned about whether we were applying any lessons learned in our development of the LH. The answer to that question is absolutely, and with a great deal of success projected. In source selections, reliability was weighted at only 6% in Apache; it's weighted at 35% in LH. In the area of operating costs our 1988 figures show a per flight hour O&S cost on the Apache of $4800, we are currently projecting that cost for the LH will be $2700. With this kind of attention to cost consciousness and a firm commitment to a $7.5 million unit flyaway cost I do not believe the Army should be embarrassed about the total or annual costs of the LH program, nor should we

come to the Congress humbly and apologetically to seek the funds. The total estimated cost of the LH program is 42 billion dollars, with the maximum annual outlay less than three billion. The LH is a major and a costly program, but its costs are not out of line with the total and annual costs of other major DoD programs. I assure you the LH is as important to the Army as other major programs are to their respective services.

We in the Army will seek your support of the LH respectfully and we will receive it gratefully, but we see no reason to be apologetic about our request.

Turning briefly to the Armored Systems Modernization, I believe the Congress has spoken and the Army has been listening. Last year the Army proposed to the Congress a program called Heavy Force Modernization. Congress balked at our request to buy off on six major programs as a single entity. In our Armored Systems Modernization program, we have included the six original systems in HFM (as well as a lightweight Armored Gun System), but we will present each system as an entity and each system will progress through the development cycle and the approval process on its individual merits. With the planned termination of M1 procurement, the Army is counting on your support of the Block III tank. In supporting this important program, you will be sending a signal to any potential adversary that while we are drawing down our Army as a result of a lessening of world tensions, we have every intention of continuing to ensure our forces -- particularly our lethal forces -- will be second to none in the world.

In closing let me say I am very pleased to have this opportunity to appear before the subcommittee and am looking forward to working with both the Members and staff of the Senate Armed Services Committee in the coming years. Mr. Chairman, at this time I would like to introduce General Pihl who will address the specifics of several of our major systems modernization plans.

Senator LEVIN. Thank you very much. General Pihl.

STATEMENT OF GEN. DONALD PIHL, USA, MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION; ACCOMPANIED BY GEN. PETER M. McVEY, PROGRAM EXECUTIVE OFFICER, ARMORED SYSTEMS MODERNIZATION

General PIHL. Thank you, Mr. Chairman and members of the committee. It is a pleasure for me to appear today, and it is always a privilege to testify on behalf of Army modernization.

The dramatic changes which have occurred in the world since I testified before this subcommittee last year have caused us to review our force structure and our modernization plans and in some cases to make significant adjustments. I would like to talk very briefly about the force structure adjustments, and then I will put in two notes to echo what Mr. Conver said about the light helicopter and the armored systems modernization plan. Then I would close by thanking the committee for its support for the 11 years that I have appeared before it over the past 20.

Sir, on force structure the Army is going to drive down from five corps and 28 divisions to an end strength in 1995 of four corps and 23 divisions. That is a five division cut in our strength. The glide path by which we will accomplish this is 35,000 soldiers being reduced per year out of the Army end-strength to arrive at an end-strength of 629,000 men and women in the Active component.

Now I understand there is a question about the mix and the role of the Reserve components. As we draw down those five divisions, three of them will be Active, two of them will be Reserve components, and the mix between heavy and light and special operations such as the 82nd Airborne and the 101st Air Mobile stays approximately the same in terms of ratio.

We would hope that we have support from Congress this year to not deviate from the Army glide path because to those who would like us to take out more than 35,000 a year in some notion of a peace dividend, you will really fracture the Army in terms of keeping it lethal, survivable, and deployable, a trained and ready volunteer Army.

So we think that 35,000 end-strength coming out of the force is a significant reduction in the Army, and we would certainly like to manage this over time so that the Army left by 1995 has the trained and ready capabilities that are possessed today. We have never taken down an all-volunteer Army before in the history of our country. We are going to ask individuals who have less than retirement benefits to leave the service early, and we feel that we will be breaking significant contracts if we have to draw down more than 35,000.

Now to those who would say the Army has taken the risk in the middle and has canceled some near-term procurements in favor of a research program that gives you programs in the future, I would say that is a risk. We are taking that risk because the threat is changing and our dollar resources have been reduced.

Mr. Conver mentioned the reduction in procurement from $14.4 billion down to $10.6 billion between 1990 and 1991. That is easily

accountable. That is $1 billion worth of tanks, $1 billion worth of Apaches, a good news story, $1 billion worth of mobile subscriber equipment, a program now bought and paid for, and the remaining billion is a little hit at about 700 different Army programs.

So in order for us to also draw down the force, we have drawn down modernization in the near term, and when we finally transmit to you the Five-Year Defense Plan you will see that we have killed about 20 systems in the U.S. Army. We regret doing this, but our job is to come out of it balanced, trained, and ready at the end.

So, sir, I would like to put in a plug for my two modernization needs that I would highlight to you. First is the Light Helicopter. The Light Helicopter replaces our Vietnam vintage-age AH–1 Cobras, OH–58s As and Cs. It is the future of the Army aviation corps, and we need your support. It goes without saying that the companion to that is the Armored Systems Modernization plan. The notion of bringing in four heavy chassis heavy protection vehicles, two medium chassis medium protection vehicles, into a family of combined arms is working against the notion that if we do not do that we are going to be overmatched at the turn of the century. So we have traded in the M1A2 Block II tank in the mid-term in favor of pursuing the Block III tank in the far-term because we know that the threat is working on their version of a Block III tank and we do not want to arrive at the turn of the century eclipsed.

Finally, sir, as I said I would, I would like to thank you and your committee for all of your support. Sir, I believe we are ready for your questions.

[The prepared statement of General Pihl follows:]

STATEMENT BY

LTG DONALD S. PIHL

MILITARY DEPUTY TO THE

ASSISTANT SECRETARY OF THE ARMY FOR

RESEARCH, DEVELOPMENT AND ACQUISITION

Mr. Chairman, members of the committee; it is a privilege for me to appear before you today to discuss the modernization of the Army's conventional forces. As this is scheduled to be my last appearance before a congressional committee prior to my retirement, I am particularly pleased that it is before a committee which has been so supportive of the Army's RDA efforts over the course of my career. I thank you for that support.

The dramatic changes which have occurred in the world since I testified before this committee last year, coupled with the resultant reordering of our national priorities, have caused us to review our force structure and modernization plans and, in some cases, make significant adjustments. First and foremost we have, despite enormous pressure for budget reductions, successfully sustained our budget commitment to our key research and development programs. In fact, we have actually provided some ($5.4B in FY90 to $6.0B in FY91) real growth in the RDTE account. As part of our readjustment process, however we did terminate a number of programs and make substantial force structure reductions to enable us to invest for the future.

Today we are faced with reshaping the professional volunteer Army which has taken the past 15 years to build into what is today a highly trained and ready force. The Army has developed this force by strictly adhering to six imperatives which continue to guide our decisions. These are: 1) to attract and retain quality soldiers and civilians; 2) to maintain forward-looking warfighting doctrine; 3) to maintain force size and mix of heavy, light and special operations units required by national strategy; 4) to conduct tough realistic training; 5) to

continuously modernize to ensure Army forces have needed warfighting capabilities; and 6) to develop competent, confident leaders.

The FY91 budget represents the first year's execution of our plan to reshape the Army to adapt to the changing threat and fiscal realities while simultaneously fulfilling our role in the national security strategy. This budget requires the Army to reduce the active end strength to 727,500 soldiers. By the end of 1991 we will have reduced our force by between 36,500 and 40,000. This force structure reduction includes the retirement of two divisions. In addition we will eliminate from the force 20,000 reserve soldiers and 15,000 civilians. In 1992 and beyond we intend to program about 35,000 active duty reductions per year.

The Army's current force structure consists of five corps and 28 divisions. The current plan envisions the Army of the mid-1990s to be four corps and 23 divisions. It is essential that we be able to manage that reduction in a way that does not result in the disintegration of what we, the Army, the Congress and the American people, have built in terms of a professional volunteer Army over the last 15 years.

I must emphasize, as our Chief, General Vuono, has that our proposed reductions are at the most rapid rate that will allow us to maintain needed capabilities as we reshape our Army. Forced reductions at a more rapid pace would threaten to fracture the force by causing unacceptable degradation of near-term quality and readiness.

The revisions to our modernization plans have been perhaps even more far reaching than our force structure adjustments. While we have consciously preserved our R&D accounts, and even made modest increases in our tech base accounts, we have reduced our procurement accounts by almost 30% from the 1989 levels.

Let me address the specific actions we have taken and those we plan to take on some of our major systems. The most crucial area of our modernization comes in the Armor/Antiarmor arena. This aspect of our modernization crosses several functional areas and will be my first topic; I will follow with Aviation, Air Defense, Fire Support, Deep Attack and Tactical Wheeled Vehicles.

The predominant weapons of the close battle are the tank, the infantry fighting vehicle and the attack helicopter. It is these areas where the most significant adjustments have been made. Implementation of our revised strategy for modernization results in completion of M1 procurement with the FY91 buy. We will procure 163 M1A1 tanks and prove out the M1A2 production line with procurement of 62 additional tanks in this enhanced configuration. This will result in a total production run for the Abrams of 7,847 tanks, a quantity we believe to be sufficient in view of recent world events. The last tank from the FY91 buy will be delivered in FY93 and at that time we will suspend tank production until we begin procuring the Block III tank.

The Block III tank improvements envisioned are a new gun, countermeasure technologies, autoloader, advanced power pack, improved track and suspension, weight reduction (from 70 tons to a 55 ton goal) and introduction of modular armor to improve survivability.

The Kinetic Energy Missile on a Bradley chassis is the Line of Sight Antitank or LOSAT dedicated antitank weapon. It will replace the Improved TOW vehicle which is a M113 carrier with a TOW pod that preceded Bradley and is still in the dedicated antitank companies of the heavy force. I might add at this point that the seven systems on this chart which have their planned procurement quantities highlighted are all part of our Armored Systems Modernization Plan.

For the past decade the fielding of the Bradley Fighting Vehicle has lagged behind the fielding of the M1 tank. Thus, to

implement our plan of a well-rounded fully modernized, albeit smaller, force the Army will continue to produce the survivability upgraded Bradley with product improved TOW 2A and TOW 2B. This is essential to maintain the kinetic energy and chemical energy mix of tank killing systems in the heavy force and to close the fielding gap between the Abrams and Bradley. Ultimately we will follow the Bradley with the Future Infantry Fighting Vehicle (FIFV). A wide range of alternatives is possible for an FIFV. The reason we have included it in Package 1 of our Armored Systems Modernization Plan is to utilize the common heavy chassis and field a future infantry vehicle that can fight with the Block III tank.

As in the case of M1 tank, FY91 will also be the last year of procurement for the AH-64 Apache helicopter. This will result in a total production run of 807 aircraft. While this is less than we had planned to procure just two years ago, it is still well above the original procurement goal of 675, and is a quantity that we feel is sufficient for our future requirements. Additionally, when we couple Apache with the LH, currently in development, we will have a much more capable, well-rounded aviation force. I will reserve further comment on aviation systems until I discuss that functional area.

While these current adjustments to our tank, infantry, and aviation capabilities are ongoing, we are also continuing to develop a key system for the light forces and dismounted soldiers.

The Antiarmor Weapon System-Medium (AAWS-M) is a key force multiplier. AAWS-M is the missile which replaces the outdated DRAGON and will kill a modern tank by employing a top attack kill mechanism. At less than 45 pounds, this single-man employable system is invaluable to our light forces and will also be used to thicken the heavy forces since it will be with Bradley crews for use in built-up areas, woods, and close terrain. The

AAWS-M is capable of launch from an enclosure and will solve the Army's requirement for military operations in urban terrain (MOUT). We have selected a system using fire and forget technology and moved into full scale engineering development last year. This system, when deployed, will give our infantrymen a level of both lethality and survivability never before enjoyed by any dismounted soldier engaged in an anti-tank role.

I will comment on the artillery systems when I discuss the Fire Support functional area.

The M9 Armored Combat Earthmover (ACE) is a highly mobile, armored earthmoving vehicle that can dig, doze, haul and scrape. It is fast enough to keep pace with modern tanks on the battlefield and offers the operator protection from small arms fire, artillery fragmentation and NBC agents. This system will be followed by another member of our Armored Systems Modernization Package I, the Combat Mobility Vehicle (CMV). In order for the Block III tank to preserve and exploit its offensive capability, the combat commander requires a true counter-obstacle vehicle. The primary task of the CMV will be to defeat complex obstacle systems. The CMV will also be performing a variety of additional tasks such as creating combat roads and trails, digging survivability positions and creating antitank ditches. The CMV will be required to operate in the same lethal environment as the tank and the Future Infantry Fighting Vehicle.

Let me now briefly address the other functional areas I mentioned earlier.

The Army Aviation Modernization Plan encompasses the entire RDTE and Procurement aviation mission area to include all aircraft, their associated systems and repair parts. One of the major premises in developing this plan has been that funding will continue to be constrained so that older aircraft need to be retired with a concurrent force structure reduction.

Specifically, the revised Army Aviation Modernization

Plan will: (1) terminate production of the AH-64 Apache after 1991, resulting in a total procurement of 807 aircraft, (2) continue procurement of the UH-60 Blackhawk for a planned total of 2253 aircraft; (3) complete the modification of the CH-47D Chinook; (4) procure MH-60K Special Operations Aircraft; (5) provide for minimum safety and mission essential modifications for the AH-64 and UH-60; (6) fully fund the development of the new vitally needed Scout/Light Attack helicopter (LH); (7) retire aging helicopters and; (8) fund those programs necessary to support and sustain all aviation programs.

A major objective in balancing the six major aircraft category capabilities in the AAMP - attack, reconnaissance, lift, cargo, intelligence and electronic warfare, and special operations aviation - is to ensure that every weapon system procured achieves its full potential in combat. The synergy achieved by an aviation force fully integrated with the other members of the combined arms team is readily apparent in the capacity of attack helicopters to rapidly concentrate combat power.

A quick-reacting attack helicopter fleet can disrupt and destroy moving armored columns and other high value targets wherever an enemy is attacking. The AH-64 Apache has been designed to provide this capability as a principal anti-armor weapon.

The Apache is highly mobile and capable of providing direct and indirect aerial fire during day, night, and limited visibility operations. The main armament of the Apache is the highly lethal and accurate Hellfire missile. Various combinations of Hellfire, Hydra-70 rockets, and 30MM ammunition may be employed depending upon mission requirements. As of 1 January 1990, 544 Apaches have been delivered and 439 fielded. FY91 R&D money continues the Apache Longbow (formerly the Airborne Adverse Weather Weapon System (AAWWS)), which is being

developed to provide a fire-and-forget Hellfire anti-armor missile. This will allow the Apache to remain hidden from anti-aircraft fire shortly after firing the missile. There are 18 AH-64 Attack Battalions deployed and ready for combat including 5 battalions deployed to Europe.

Scout helicopters perform the vital reconnaissance mission as well as intelligence, surveillance and target acquisition and designation. The Kiowa Warrior (formerly the Army Helicopter Improvement Program (AHIP)), or OH-58D, gives the Army a scout helicopter employing a thermal imaging system, laser range finder/designator and high power television incorporated into a mast mounted sight that provides superior detectability and survivability. Operating day or night under hot and adverse weather conditions, the Kiowa Warrior provides command and control, target acquisition and target designation. Due to affordability, the Kiowa Warrior is not included in the budget. The program stops at 243 of the 507 required.

LH is the centerpiece of Army Aviation and the Army's number one priority system in research and development. It is absolutely critical to the future of the Army, particularly when one considers its role as a force multiplier and as an antiarmor system. LH will replace the AH-1, OH-6, and OH-58 light helicopter fleet and complement the AH-64. The light fleet is approaching obsolescence and will be unable to meet the possible threat of the mid-1990's and beyond. Missions of LH include armed reconnaissance and light attack with an inherent air-to-air capability. The LH will provide a highly reliable, easily maintained weapons system with the lethality and survivability necessary for deployment on the battlefield of the future. LH will have enhanced combat capability through the use of advanced technologies in the Mission Equipment Package (MEP), airframe and engines. Enhancements in target acquisition, night pilotage and navigation systems expand the warfighting capability of Army aviation into the hours of darkness and adverse weather.

LH is a key conventional force initiative that will enhance the conventional warfighting capability of the Army while remaining within constrained force structure and funding projections.

The Army has the world's best tank and the world's best fighting vehicle in the forward area. However, they are currently being defended from the air threat by a 1968 vintage air defense gun. Recognizing that the multiple air threat to the forward area cannot be countered with a single weapon system, the Secretary of Defense approved the Forward Area Air Defense System (FAADS) concept on 8 January 1986. FAADS is a "system of systems" comprised of Line-of-Sight Forward Heavy, Non-Line-of-Sight, Line-of-Sight Rear, Combined Arms Initiatives, and Command, Control and Intelligence.

Line-of-Sight Forward Heavy (LOS-F-H) maneuvers with the combined arms team. It uses laser beam guided missiles mounted on a Bradley chassis to provide defense against helicopters, fixed wing and other aircraft that are in line of sight.

Non-Line-of-Sight provides the unique capability of engaging helicopters and armor that are masked by terrain or are beyond the range of line of sight systems. The key system feature is a fiber optic cable which allows the gunner to guide the missile and view what the missile seeker sees as it flies to the target.

Line-of-Sight Rear uses the proven Stinger missile pedestal mounted on a HMMWV to engage fixed wing aircraft that are attacking our logistics points and command points in the rear of the forward area or are transiting to the rear.

The Combined Arms Initiative provides "self-help" air defense for helicopters, tanks, and the Bradley. Air-to-Air Stinger is being incorporated on helicopters, tank ammo is being enhanced for air defense application and the Bradley reticule sight is being improved to enhance air defense capability. Each of these FAAD component systems will be very effective on an

individual basis and will serve to complement each other. However, the "glue" that holds the FAAD system together is the Command, Control and Intelligence component. This component is made up of a series of ground and aerial sensors and communication equipment that serve to pull FAADS together into truly a "system of systems". With the fielding of FAADS, our ground forces will be defended from the air threat by the world's best air defense system.

The 1983 Defense Science Board (DSB) Study on Countering Soviet Fire Support Systems concluded that systems designed to counter threat fire support must be fielded much more rapidly, and in significantly greater quantity, if friendly forces are to survive the initial preparation fires of an attack.

Our Fire Support Master Plan is consistent with the recommendations of the DSB and addresses cannon, rocket and missile systems used to perform three principle missions: close support for maneuver units; counterfire against threat indirect fire systems; and deep fires against high value targets. The modernization trend in this functional area is toward individual weapon systems operating autonomously with position/navigation systems and on-board fire control; smart munitions permitting lethal attack of point targets; and significantly improved target acquisition, command and control, and logistical support.

The Army's new lightweight 105mm howitzer, the M119, is scheduled for initial fielding in December 1989. The M119 will add needed firepower and improved range and reliability to rapidly deployable light infantry, airborne and air assault light divisions.

In the close support role the M109 Self-Propelled Howitzer provides the primary indirect fire support to the maneuver brigades of armored and mechanized infantry divisions. The M109 Howitzer Improvement Program (HIP) will have the capability of autonomous operations with its on-board fire

control system and positioning/navigation system, with significantly improved survivability, responsiveness and reliability.

To enhance this system's counterfire capability a new munition is being developed. The Sense and Destroy Armor (SADARM) is a relatively low cost sensing munition designed to detect and destroy lightly armored vehicles, primarily self-propelled artillery. After launch the submunition is dispensed over the target area and searches for stationary or slow moving armored vehicles using a combination millimeter wave/infrared, dual mode sensor. Once a target is detected, SADARM fires an explosively formed penetrator which, traveling at an extremely high velocity, perforates the top of the target. This munition remains in development. SADARM is also being developed for the MLRS.

While the Army continues to improve the M109 self-propelled howitzer under the Howitzer Improvement Program (HIP) and continues to field the Multiple Launch Rocket System (MLRS) with newer rounds coming, such as Search and Destroy Armor (SADARM) and Terminally Guided Weapons (TGW), the need for a modern howitzer replacement is self-evident. The AFAS will apply advanced projectile propulsion, either liquid propellant or unicharge. Also envisioned are automated ammo handling and firing, advanced fire control/battle management, signature reduction technologies and increased protection. These will be demonstrated in an Advanced Technology Transition Demonstrator (ATTD) in order to achieve greater range, greater survivability, reduced crew, increased on board ammo supply, autonomous operations, and 3-4 times the rate of fire over the HIP.

The Multiple Launch Rocket System (MLRS) is a system of multiple fire, free flight rockets with Dual Purpose Improved Conventional Munitions (DPICM) warheads. MLRS supplements cannon artillery fires by delivering large volumes of firepower in a

short time against critical, time-sensitive targets. System growth is planned by adding a Terminal Guidance Warhead (TGW), a chemical warhead, Sense and Destroy Armor (SADARM) and Army Tactical Missile System (ATACMS), which I will address later.

Finally, the Future Armored Resupply Vehicle-Ammunition (FARV-A) is the ammunition resupply vehicle to replace the FAASV. It will be complementary to the AFAS. There will be one FARV-A for each AFAS and the fielding of the two systems will be simultaneous. The FARV-A will provide automatic rearm capability for the AFAS negating the requirement for the crew to dismount during reload operations. This concept will allow for rapid rearm, will be less manpower intensive, and will increase the survivability of the Army's future direct support artillery system.

Currently our forces do not have the full capabilities necessary to execute deep operations to the extent envisioned by our Airland Battle doctrine. Joint programs with the Air Force provide for many of the deep operations requirements, and we are also developing capabilities on our own to better execute deep operations.

The Army and Air Force are developing the Joint Surveillance Target Attack Radar System (JSTARS) which will enable commanders to see more than 100 kilometers deep into the enemy's force array. JSTARS is a battle management and target attack control system that will detect, track and assist in attacking moving and fixed tank-sized targets. The Army is developing the Ground Station Module while the Air Force provides the airborne platform, radar and data links.

As mentioned earlier, ATACMS is a conventional semi-ballistic missile that will be fired from the existing MLRS launcher; each launcher will carry two ATACMS missiles, each with 1000 Antipersonnel Antimateriel (APAM) bomblets. It is designed to engage high priority land targets at ranges beyond the

capability of cannons, rockets and the Lance missile system. Its mission is to interdict, delay, disrupt and destroy the second echelon assault forces, command and control elements, and logistic support units.

In the non-strategic nuclear arena the Follow-on to Lance (FOTL) is a replacement for the aging Lance missile system. FOTL will meet the corps and theater commander's requirements for delivery of nuclear fires against high priority targets. Research and development funds in FY91 will initiate a Full Scale Engineering Development contract.

Combat Service Support includes some of the least visible, yet crucially important, products of the RDA effort to equip our soldiers with the equipment and systems needed to defeat the threat. These items include our tactical wheeled vehicles, which are absolutely essential.

We are continuing to procure and field the very successful High Mobility Multipurpose Wheeled Vehicle, HMMWV. This lightweight, highly mobile, diesel powered, 5/4 ton vehicle has been well received in the field and will continue to be the backbone of the light vehicle fleet for some time. The Army already has Congressional authorization for an additional multiyear contract for more HMMWVs and we are looking into procuring additional vehicles well into the 1990s.

The Army is proceeding with a new Family of Medium Tactical Vehicles (FMTV) to replace the aging 2.5 Ton vehicles and help correct existing shortfalls in the 5 Ton fleet. The FMTV will have multiple body styles and should be shorter, lighter, more fuel efficient, and more mobile with reduced ownership costs. We will capitalize on state-of-the-art truck design for the FMTV.

The Palletized Loading System (PLS) is a Non Developmental Item (NDI) truck which will feature a self load/unload capability heavy truck and companion trailer for use

in the Corps Ammunition Distribution System. We expect PLS to improve ammunition transportation and handling efficiency while requiring less personnel, reduced MHE and releasing existing heavy truck assets for other essential missions.

In closing let me say that I am thankful to the four oversight Committees, and in fact the entire Congress, for the support which has been provided to our modernization program over the past decade. This year our budget request contains what we consider to be the minimum funds essential to redressing our insufficiencies and developing the capabilities essential to the defense of our nation. With your help and support, we will provide our Army with what is needed for it to continue to serve as a viable deterrent and to be ready should it be called upon to protect our Nation's vital interests. I ask your support in sustaining this level of funding.

Senator LEVIN. Thank you. Senator Shelby.

Senator SHELBY. Mr. Chairman, I have no opening statement other than I regret that General Pihl is going to leave us. I think, as he has indicated, this is going to be his last appearance before us, but I hope that we will be hearing from him in some capacity, Mr. Chairman, because he has a lot to give to this country, yet maybe in a different capacity.

General PIHL. Thank you, sir.

Senator SHELBY. Secretary Conver, we welcome you and look forward to a round of questions. Thank you, Mr. Chairman.

Senator LEVIN. Thank you very much, Senator Shelby. Senator Dixon, do you have an opening statement?

Senator DIXON. Mr. Chairman, I have a statement I would like to put in the record, and I would appreciate it very much if these written questions could be submitted to the witnesses. I apologize to all concerned. I have to make a speech in 10 minutes here in the building. The chairman has frankly told me that we would all be better off if I did not bother people with that speech, but I feel compelled to go ahead anyway. I thank the Chair.

Senator LEVIN. It was even stronger than that. [Laughter.]

Senator DIXON. I cleaned it up a little. [Laughter.]

[The prepared statement of Senator Dixon follows:]

PREPARED STATEMENT OF SENATOR ALAN J. DIXON

Mr. Chairman, I am delighted that the subcommittee is going to receive testimony today on the Army's modernization plans. I gather that our distinguished witnesses—Assistant Secretary of the Army Steven K. Conver and Lt. Gen. Donald Pihl—are going to discuss the Army's modernization efforts within the context of projected force structure changes.

I believe it is important to point out that decisions concerning the modernization of our conventional forces are among the most difficult we face in these rapidly

changing times. Commitments to expensive new starts must, of course, always be weighed carefully. Yet, given the uncertainty of future and even current defense requirements, moving in the right direction with the Army's conventional weapons programs is now more difficult than ever. I hope that the testimony we hear today will help Congress proceed in a sensible fashion on these issues.

For some time now, I have maintained that the drastically reduced threat in Europe permits us to take a different approach to modernizing conventional weapons. As former Chairman of the Joint Chiefs of Staff General Vessey and others emphasized in testimony before the Senate Armed Services Committee, we can safely skip the next generation of systems in many areas, while continuing research and development efforts.

At the same time, I would argue, given the uncertainty of the overall threat environment, we should not ignore the importance of the conventional systems that we now possess. More importantly, these existing systems can continue to serve our needs if we improve them over time. I believe that adopting this approach would allow us to avoid the mistake of committing to big ticket new programs that we might not need. It would also ensure that we maintain a solid foundation of conventional defense capabilities that will continue to be essential to our national security.

Mr. Chairman, I look forward to hearing from today's witnesses.

Senator LEVIN. Your questions will be asked for the record, and we thank you.

First, you both made reference to affordability and to the cuts that you are talking about and some programs which you do not like. You are talking about risks. You are weighing risks, which is what you have to do, but I just want to give you some idea as to what the priorities are in this budget request.

On the conventional side, which is this subcommittee's jurisdiction, you have about 21 conventional weapon terminations, but one-third of those are Army in the 1990 and 1991 budgets. You have the V-22 cut, the F-14 eliminated, the AHIP eliminated, the Phoenix eliminated, the recovery vehicle eliminated, the F-15 eliminated, the Apache eliminated, the M-1 eliminated, the Maverick, and on and on, 21 conventional weapons systems, about one-third of them Army, many of which you have said you believe to be useful. You do not like eliminating a number of those, and you have mentioned the ones that you do not like eliminating. You consider that a risk, and you have to weigh it against another risk.

Then you look at the nuclear side of things, and in every single case there is an increase requested in this year over last year's budget with no exception. With the B-2 bomber, more requested this year than last; the MX, more requested this year than last; SDI, more requested this year than last. It just goes on and on. The cuts that are produced by all these eliminations on the conventional side are about $3 billion. There is, however, a request for $4.5 billion more on the nuclear side than last year, so the increases requested in nuclear weapons more than make up the savings which are produced from the cuts in those 20 weapons systems for the eliminations and those 20 weapons systems on the conventional side.

Now you folks talk about taking some risks, and you have no choice. You have been given a number. I understand that. You are going to do the best you can within that number. This is the context within which we are operating. Now I think that is the wrong priority. That does not make sense to me to be cutting the V-22 and the F-14 and the Apache and the M-1 and the other items in here which are useful systems, premature cuts, and at the same

time we are getting significant increases in every one of these nuclear weapons systems.

Now that is where I am coming from. That is not where other members of this committee may be coming from. They can speak for themselves. They may have different ideas on it. We are the Conventional Forces Subcommittee. We are obligated to try to have a strong conventional military force for this country, whatever is needed to meet the current and projected risk. I do not think that balance makes any sense. In fact, I view that as a significant imbalance in terms of the direction of our military forces. I am not going to ask you to respond to that, obviously. It is not a question.

When you talk about cuts, I just want to let you know one of the reasons you are talking about cuts is not just because the threat is reduced—which it is, and we obviously have to talk about cuts on the conventional side. That should not be immune from cuts—but how is it that we got 21 systems eliminated, most of them prematurely, while at the same time every single nuclear weapons system without exception that was in last year's budget has an increase requested in this year's budget. To me, those are the wrong priorities given the jurisdiction, and given the responsibility of this subcommittee I think it is the wrong priority that this subcommittee is faced with. Personally, it does not reflect my philosophy of strength, either, but that is the context in which we are dealing.

ASSESSMENT OF FUTURE RISK

Now let me get specific. You talk about armored systems modernization. Last year you told us that you were planning on a mid-term plan to buy a Block II tank and then a long-term plan to build a new tank. That was last year's proposal. This year you are going to terminate your mid-term, your Block II, and just go ahead with a long-term plan hoping that Congress 5 years out is going to restart an industry that you propose to terminate. Now why do you believe that there is going to be a greater risk of a conflict with the Soviet Union in 1999 than there is in mid-term? On what do you base that assessment that you want to take the mid-term risk but not the long-term risk? Is there an intelligence assessment that you base that on?

General PIHL. Sir, in looking back at the armor/anti-armor crisis of 1987, as you know we put $5 billion per year of the Army budget into tank killing systems for the past 2 years. We had predicted the arrival of the Future Soviet Tank-2 and the FST-3 to come in between now and the end of the decade. We do have intelligence that that is going to occur slower than we thought and had talked about last year.

The issue of giving up the Block II tank, 2,900 tanks turned back in, is that the Block II, 62 of them, one battalions worth, would be produced, and the line that you lay away would be capable of recall producing a Block II tank rather than an M1A1 tank. Now that may be naive. That may be academic. That may be sophomoric, but I would say to you that we should lay away a more capable line than the line we now have presently producing the M1A1.

The questions then are what happens to the base, and are there opportunities for foreign military sales, and is it important for a

country like ours to have some continuity in the heavy force area? I think the answer to all those questions is yes. We are hopeful that someone will come in on top of our 62 tanks Block II category and procure them from us as a seller. We would also see an opportunity there to perhaps retrofit our earlier tank force and upgrade them into an M1A2 capability.

The real issue is the thrust of your question, and that is what do you know about the year 2000 that you did not know a year ago? The answer is the Block III tank, Soviet FST-3, when it comes in will have an overmatching capability to the current force, and that is what we are trying to hedge against by building our Block III tank, to get it into the field in 1999 and not wait for the crisis to reappear.

Senator LEVIN. You know more about that threat than you did a year ago?

General PIHL. Yes, sir, we do.

Senator LEVIN. Do you also know that it is coming in more slowly now?

General PIHL. It is coming in slower than was predicted last year, that is correct.

Senator LEVIN. You believe this year that it has greater capability than you believed it had last year?

General PIHL. Sir, we believe that the capability that we projected for it is the same as it was last year but nonetheless an overmatch if we allow it to happen without a counter from our side.

TANK UPGRADE PROGRAM

Senator LEVIN. My last question is just to reinforce something you said in there which should not be lost, which is that you believe it is important that we have continuity, that we maintain that industrial base. There are a couple of possibilities. One way you hope to maintain it is foreign military sales, and the other one is through a modernization, an upgrade program. That upgrade program, though, is not in the budget. We would have to add it to the budget, is that correct?

General PIHL. That is correct, sir. Right now that is an idea that we have been exploring. We owe an answer to that to the House Armed Services Committee and, as well, to you. We have done some preliminary cost estimates on what that would require the Army to do, to take our plain M-1 105 gun tanks and upgrade them to an M1A2. As you point out, it is not a part of our budget request for 1991.

Senator LEVIN. It is something that you are supportive of at least preliminarily?

General PIHL. Yes, sir. We think it is a neat idea.

Senator LEVIN. Thank you. Senator Thurmond.

SOLDIER/MARINE ENHANCEMENT PROGRAM

Senator THURMOND. Thank you very much, Mr. Chairman. General Pihl, last year the committee included $18 million in the Army's research and development account to increase the effectiveness of small infantry units through the development of improved

weapons and equipment. Would you tell us where you stand on this program and what initiatives you are exploring?

General PIHL. Certainly, I would be glad to do that, Senator. We are very excited about the Soldier/Marine enhancement program. To date, major initiatives that we have taken are eye protection for the troops, lightweight personnel armor, anti-personnel mine and booby trap neutralization, the Joint Services small arms program, and an advance grenade munitions. We think that the $18 million in 1990 and the $12 million for the Marine Corps was a wise move by the part of the committee, and we are going to try to upgrade the basic soldier and Marine performance on the battlefield through these enhancements.

M–1 TANK PRODUCTION TERMINATION

Senator THURMOND. General Pihl, the Army has recommended that the M–1 tank production be terminated after fiscal year 1991 with a total production run of approximately 7,800 vehicles. What is the impact of this termination on the modernization of the National Guard units, some of which are still using the M–48s, which represents 20- to 40-year-old technology?

General PIHL. Our goal, Senator, is to have an all M–1 force. As we look at the conventional force reductions in Europe and the number of tanks that we are going to have to take out to put in our side of the Western agreement, we believe we will be able to redistribute tanks within the Active component and the Guard so that everyone will be in an M–1. There may be a few M60A3s left, but our goal is to try to get everyone into an M–1.

LIGHT ARMORED VEHICLE

Senator THURMOND. Secretary Conver, Operation Just Cause pointed out the problem our light forces have in terms of armored vehicles. Although I understand that the Sheridan performed its mission, it also showed its age. What are the Army's plans to replace the Sheridan vehicle in the 82nd Airborne Division, and what are your plans to provide a light armored vehicle for the light infantry divisions?

Mr. CONVER. Sir, we have a program that is not funded in the budget before you but will be funded in the 1992 budget to procure as a nondevelopmental item a system that we are calling the armored gun system or AGS, as a replacement for the Sheridan tanks. That will be a competitive procurement, but our hope is to procure an item off-the-shelf as a nondevelopmental item. I believe you will see that reflected in next year's budget. Right now we are in the process of working out a requirement for that system, trying to figure out what the capabilities of that system have to be, whether it has to be air droppable, the armor, and so forth. You will see that in next year's budget, and I am sure we will have opportunities to brief you on our plans as they develop over the year.

MEDIUM RANGE ARTILLERY

Senator THURMOND. General Pihl, the Army has made substantial improvements in the artillery for our heavy forces through its Howitzer Improvement Program, which I understand will be intro-

duced in the field in the near future. What are the Army's plans to provide medium range artillery for our light infantry divisions which must now rely on the M119?

General PIHL. Sir, at the present time we have no plans to upgrade the light divisions beyond the 105 caliber and the M119, as you point out. We only have 2,437 M109s in the inventory. We will put 792 of those through the Howitzer Improvement Program, and then as the armored system's modernization plan unfolds, one of the categories there for the common heavy chassis is the advanced field artillery piece. We plan to build 782 of those. All of that fills out the heavy forces in the Army. One of the reasons we went to the M119 and the 105 caliber is because of its extended range ammunition. We just delivered the first 54 of those to the Seventh Infantry Division out in California, and we are well satisfied with the M119.

TRAINING SIMULATION DEVICES

Senator THURMOND. Secretary Conver, as the cost of ammunition, fuel, and equipment is increasing, it seems to me that we need to concentrate on training simulation devices. What is the Army doing in terms of improving training simulation devices?

Mr. CONVER. Let me ask General Pihl to address that one, Senator, if I might.

General PIHL. Sir, right now we have three excellent training systems. We have the conduct of fire trainer that allows the individual crewman to learn his skills in the tank and in the Bradley. We have the platoon trainer, the platoon group as a unit. We have used that to get ready for things like the Canadian Army Trophy. Then at the unit level, company, and battalion, we have a program called Simnet which is a DARPA program that was just handed off to the Army.

The next step for the Army is to integrate those three programs into what we call seamless simulation so that you can be exercising a battalion and a brigade staff at the same time you are exercising platoons at the same time you are exercising crews. We believe through the networking and use of software we are going to be able to network our simulations and do multi-echelon training through simulation.

RESERVE FORCES EQUIPMENT SHORTAGES

Senator THURMOND. General Pihl, the National Guard and Reserve forces will continue to play a critical part in our Nation's defense despite the reduced threat. In order to be fully effective in their role as citizen soldiers, they must have the right quality and quantity of equipment. What, in your opinion, are the most critical equipment shortages in our Reserve forces, and what are the Army's plans to fill these shortages?

General PIHL. Sir, I think as we look at the redistribution of equipment between the Active and the Reserve as we are drawing down both components, certainly the tank has been previously mentioned, we want to get the Reserves into at least the basic M-1.

The helicopter, the Apache, will be in the Guard and in the Active component. The multiple launch rocket system (MLRS), it is

critical that we get the MLRS into the Reserve forces. We need to buy more MLRSs in the Army.

We do want to take a look at the old trucks that we have in the inventory and get rid of the old trucks in both the Active and the Reserve components and make sure that there is a fair distribution across both components.

In the area of artillery, we would like to do the artillery modernization, and certainly in the area of air defense, with systems such as pedestal-mounted Stinger, we would like to get into the Reserve components. I could go on.

Senator THURMOND. Thank you. My time is up, Mr. Chairman.

Senator LEVIN. Thank you, Senator Thurmond. Senator Shelby.

FOG–M

Senator SHELBY. Thank you, Mr. Chairman. General Pihl, we have had some interesting discussions here before regarding the fiber optic guided missile (FOG–M). I would like to focus on that for just a few minutes, and also, Secretary Conver, regarding your opinion concerning the future of the non-line-of-sight program, because it seems like a real technical breakthrough to me, and also it seems to be very mobile.

Secretary Conver, I believe, mentioned six items dealing with criteria, and it seems that the FOG–M would certainly suit most of that, especially the lethality, versatility, and deployability when you are dealing with light forces in the future and mobile forces. What is the future, General Pihl and Secretary Conver? Where are we going with the FOG–M? I hope not backwards.

General PIHL. I hope not, too, sir. In our previous deliberations at the Pentagon as we put the 1991 budget forward, we had capped the FOG–M program as an R&D only and took out all of the procurement dollars. As we looked at the opportunities to execute the budget and to see what we could have done smarter, we are now going to put the FOG–M program back into production. There will be a delay from what would have been the 1991 budget, but as we are working on our current program objective memorandum, the next 5-year POM for the Army, we have restored the FOG–M to a procurement status.

Senator SHELBY. General Pihl, this would be in keeping with your statements earlier dealing with the tank. In other words, you are looking down the road instead of back. You are looking forward instead of backward in these weapons systems?

General PIHL. Yes, that is correct.

Senator SHELBY. If you have to make some choices, if you are dealing with mobility—and we are going to do that—such as a different type of tank toward the end of this decade, a different type of helicopter, then you are obviously going to have to be looking at the cutting edge of weapons, and what is more on the cutting edge of technology than the FOG–M?

General PIHL. Sir, I agree with those comments. In our first programmings to find the money to pay the bills, we took the production money, as I stated; but we are going to put it back.

Senator SHELBY. Secretary Conver.

Mr. CONVER. The only thing I would add to what General Pihl said is that we are involved now in basically a 4-year full-scale development program that will culminate in a milestone three or low rate initial production review in fiscal year 1994. It is our position that we would like to find the money to commence production at that point. As General Pihl said, we are still trying to work out the funding. It is not reflected in the funding that is before you, but that is an issue on which we are actively working. This one will not slip through the cracks, Senator Shelby.

AVENGER

Senator SHELBY. What about the Army's plans for the Avenger, which is the Pedestal-Mounted Stinger (PMS)? You alluded to that a minute ago. That is obviously a lethal weapon.

General PIHL. Yes, sir. The Avenger system, where you put the Stinger RMP weapon system up on a pedestal on a HMMWV, is a real success story. We just had a Defense Acquisition Board (DAB) review of the program to go into full production of the Avenger, and that was approved by Mr. Betti. I might paraphrase his comments about how well prepared we were to go through that DAB. He said this is a model program, and that this is the way all the programs ought to be when they come for a DAB review. We are really happy with that. On a personal note, if I may, sir, this first started at ADEA which I proudly commanded for 2 years out at the 9th Division, so I had some personal interest in making sure that the Pedestal-Mounted Stinger got over the top. It is a winner.

LH COST

Senator SHELBY. I commend you for your foresight in going forward. I have been a strong supporter of the Apache as well as the Black Hawk and the AHIP and so forth, but I realize, General Pihl, as you and General McVey and the Secretary and others do, that we have to go to the next generation. We have to make sure we get there. The Light Helicopter (LH) is one way to get there.

Let us talk about the cost. What is the projected cost? May I run through some questions? You might want to furnish this for the record. What is the projected cost of the LH? How does this cost compare to that of the Apache? What about the weight? Will the LH act independently, or will it complement existing aircraft in the fleet? What role will the LH play on the battlefield? What about Stealth as far as the LH is concerned? How observable will the LH be, and how does the LH compare to existing aircraft? What about survivability of the LH? What weaponry will the LH carry? How will the LH be deployed? Is it self-deployable and so forth? That is a lot of questions. Do you want to furnish the answers for the record, or do you want to comment on some now? Secretary Conver, you seem to be anxious to respond.

Mr. CONVER. Sir, we have been working on this pretty hard, and I am sure we are all familiar with this. The answers to the questions constitute about a 20-minute briefing that General Pihl gave to the Secretary and all the group yesterday, but let me try to abbreviate the testimony.

Senator SHELBY. It is also important to this committee.

Mr. CONVER. Let me test my memory here and see if I can do this without referring to my notes. In terms of the cost, the total cost of the LH program is going to be $38 billion or so. The unit cost is what we are really focusing on because the total cost is a function of quantities. The unit cost of the aircraft we have cost capped at $7.5 million. That is fiscal year 1988 constant dollars. That is flyaway cost. That compares to a comparable number for the Apache that is about $10 million.

Senator SHELBY. The more you build, the lower the unit cost; is that right?

Mr. CONVER. Yes, sir, that is correct. Right now, faced with declining dollars, we are looking at perhaps the necessity or the inevitability of reducing the total quantity of LHs that we want to buy from 2,096 helicopters down to a slightly lower level which presently is 1,875 vehicles.

Senator SHELBY. Why do you want to lower it if the unit cost will work out to be less for more?

Mr. CONVER. Sir, really again it is an affordability issue. The LH has been included in the major aircraft review that Secretary Betti is having. This Thursday, you, and your associates on the House side, are going to be hearing from Mr. Cheney on the results of phase one of his review addressing some of the fixed wing aircraft.

Senator SHELBY. Mr. Secretary, is the new Light Helicopter that we are looking at one of the Army's highest priorities?

Mr. CONVER. Sir, it is our absolute number one priority. Notwithstanding that, I think we find ourselves in the position for affordability reasons of having to reduce the total quantity that we are going to buy by about 230 or so.

Senator SHELBY. Is the name "Light Helicopter," my emphasis being on "Light," a misnomer here? In other words, a lot of people might think it is not going to be lethal.

Mr. CONVER. No, sir. We are capping the weight of this helicopter at 7,500 pounds empty weight. That is a far smaller and lighter helicopter than the Apache, and people have the tendency sometimes to confuse the two. The Apache and the LH are designed to be companion vehicles and work together in the heavy divisions. Maybe in a few seconds General Pihl could talk about the battlefield use in each of the three applications where we are going to have our LHs fielded. Let me just try to run down these questions for you. In terms of the cost, I think I mentioned we are capping the unit cost at $7.5 million per aircraft. We are capping the weight at 7,500 pounds empty weight. Those two are related, because if we let the aircraft get heavier it will by definition become more expensive.

Senator SHELBY. Are you using composites in this?

Mr. CONVER. Yes, sir, we are.

Senator SHELBY. Everything on the advance cutting edge of technology?

Mr. CONVER. That is correct, sir. That relates to another of your questions, which is the low observability. Without getting into a classified discussion, I will say that we are not trying to——

Senator SHELBY. We will get into that some other time.

Mr. CONVER. We are not attempting to develop an aircraft that has the radar cross-section of a bumblebee or something as perhaps

some of the fixed wing aircraft programs, but we are trying to have a significantly——

Senator SHELBY. It will be an improvement over what we have?

Mr. CONVER. A big improvement, sir. The observability of this helicopter is going to be reduced not only in the radar cross-section but in its visual aspects, its acoustic aspects, and its infrared aspects. We will try to suppress the IR, the heat coming out of the engine, so that across the entire spectrum of sensors that could be detecting this, including the eyeball, we will be trying to reduce——

Senator SHELBY. Do you want to get into the lethality at another meeting?

Mr. CONVER. No, sir. We can deal with that here. Let me continue and add lethality to the list here. Let me just say at the outset that the system will have lethality comparable to the Apache because it will carry the same weapons. It will carry Stinger and Hellfire missiles, but it will not carry the same number as the Apache because the Apache is a much bigger, heavier attack aircraft. I believe, if my numbers are correct, the Apache carries 16 Hellfires, whereas the LH, as I recall, carries eight. Each of them would carry two Stingers, if I have my numbers correct.

In terms of survivability, we depend not only upon the low observability features that we are building into the aircraft, but we are also building in significant ballistic protection levels that are equivalent to those of the Apache. So where we had the Apache taking a lot of hits in Panama and being able to fly notwithstanding those hits, we will build that same capability into the LH.

That is where we have a big improvement over the existing OH-58 AHIP aircraft. They are not designed for ballistic protection. Once they are hit, they are pretty much in trouble. This aircraft will have ballistic protection equivalent to the Apache even though it is much lighter.

Now we are getting into your question about comparing the aircraft, and let me do that in two ways. First, comparing it to the Apache, again, these are not competing aircraft. They are complementary aircraft. They will be used together in the heavy divisions where you will have the LH performing the scout attack mission closer to the forward line of troops, whereas the Apaches will sit back farther because they are larger and somewhat more detectable, slightly less survivable in that environment. So the LHs and the Apaches will work in tandem as a complementary team.

Although we can force fit the Apache to be used in the low intensity end of the conflict spectrum like we did in Panama, had we had the LH in our forces in Panama, the LH would have been far superior than the Apache for that kind of application given the level of the threat. We were looking for mobility and so forth. So those are complementary systems. The Apache is much heavier, more expensive, carries more weaponry, and is designed to be used with the LH.

Now the real comparison that is of interest is comparing the LH to the current generation of scout attack vehicles, and that means the OH-58 series of aircraft. The OH-58A and C are unarmed scouts. The OH-58D or AHIP is an armed version, and we present-

ly have plans to arm all 243 OH–58D aircraft so that they will all be armed.

There is substantial advantage from the LH over the OH–58D. We could run down the list, but just a few of them are the ballistic protection that I already mentioned, the vertical rate of climb, particularly in the high, hot conditions that we would find in Mideast contingency operations. The LH has a vertical rate of climb of 500 feet per minute equivalent to the Apache, whereas in that environment the AHIP basically cannot get off the ground, zero rate of climb in the high, hot condition.

Those are just a few of the things. Obviously, the avionics will be much better. The weaponry will be more extensive and more capable. So we feel like this is a follow-on to the OH–58 series of aircraft and a very major improvement in capability over those.

Senator LEVIN. Excuse me, we are going to have to interrupt you. Did you complete that answer?

Mr. CONVER. Pretty well, sir.

Senator LEVIN. Senator Thurmond has to leave, and I want to give him a chance to ask questions.

Senator SHELBY. Mr. Chairman, I appreciate your and Senator Thurmond's indulgence on my overrunning my time.

Senator LEVIN. That is okay. If I did interrupt, you can come back to that; but Senator Thurmond must leave, and I wanted to yield to him for a few questions.

Senator THURMOND. Mr. Chairman, I have another engagement. I have to leave to go to another meeting. I just want to thank the witnesses for their presence and the good work they are doing and ask that the balance of my questions be inserted for the record.

Senator LEVIN. Thank you, Senator Thurmond. Now, Mr. Conver, if I interrupted your answer to Senator Shelby's last question, why not complete that.

Mr. CONVER. I think I have hit the hot points, however I am sure General Pihl has a few remarks he would like to add.

General PIHL. Clearly, our number one priority in R&D is the versatile aircraft that performs in all spectrums. The reason for light is for light attack and armed reconnaissance, so it is a small aircraft that performs as the companion to the heavy attack which is, of course, the Apache.

Senator SHELBY. It is tremendously lethal, is it not?

General PIHL. It is very lethal. It has half the ordnance load of an Apache on a Light Helicopter stowed inboard.

Senator SHELBY. Quicker?

General PIHL. Quicker: 170 knots versus 145 knots. We think it will turn inside the radius of the Hokum and the Havoc. Now the Hokum is going to go up to 190 knots, and there is a lot of concern about that, but that is because it uses two rotors on top of the helicopter that turn against one another. We think in terms of two T–800 engines, which was our model engine acquisition program that preceded the Light Helicopter program, we are going to have a truly capable machine out there to fight. I think the only thing the Secretary did not cover would be night vision. Night vision pilotage using the mission equipment package on the Light Helicopter, the pilots will not have to wear goggles.

Senator SHELBY. You demonstrated some night capability in Panama, did you not?

General PIHL. Yes, sir, we did.

Senator SHELBY. Mr. Chairman, I appreciate your indulgence. I will wait for my next turn.

M–1 TANK PROGRAM

Senator LEVIN. Thank you. Let me go back to where we left off, General Pihl. As I understand your testimony, you basically are saying that you are planning on terminating the purchase by the Army of the M–1 tanks. You are planning on that. You are hoping, though, that a tank base will be maintained in two ways. One way is through foreign military sales, and the other way is through a retrofit program. Is that correct?

General PIHL. That is correct, sir. That is a personal opinion, but I believe that strongly.

Senator LEVIN. Secretary Conver, is that basically your opinion?

Mr. CONVER. Yes, sir.

Senator LEVIN. General, you said it is important to have continuity, and I am wondering if you could tell us how important it is that we have continuity here. Is it very important?

General PIHL. Sir, I would say it is very important. If I could ask General McVey to give you some examples of what that means in the vendor base, I would like Pete to chime in.

Senator LEVIN. Okay, General.

General MCVEY. Sir, currently we have in support of the Abrams production about 18,000 vendors, suppliers, and 12 prime subcontractors. To maintain that base gives us the capability to expand in times of emergency. It is the technology. It is the propulsion system. It is the transmissions. It is the electronics, the suspension. Equally important are people who work the lines who understand the process, how to take those components, apply them to a vehicle, and make sure that we still do a quality product. It is a significant capability. To have a retrofit program or foreign military sales, we can maintain some of that but certainly not anything like what we currently have.

Senator LEVIN. It would be helpful, though, to have both foreign military sales and a retrofit program in terms of maintaining that base, although it might not maintain all of it? Is that what you are saying?

General MCVEY. Briefly, yes, sir. I think that if you have a retrofit program and foreign military sales, there is a cost benefit to the customer who applies for the foreign military sales and there is less cost to the Army for the retrofit program. It is just a matter of quantity and economics.

U.S. TANK INDUSTRY

Senator LEVIN. We have alluded to the importance of maintaining the base, but let me give you some interesting facts. The Department of Defense is proposing to terminate six major conventional weapons systems this year, and I have difficulty with a number of those, as I have expressed. Those six systems are three helicopters, two fighters, and one tank. We have gone through this

and analyzed what happens if you do that, if we approved all of that. If you approved all of that, you still have a surviving aircraft industry. You still have a surviving helicopter industry, but you do not have a surviving tank industry. I am wondering, General Pihl, if you could give us your personal opinion on the effect on our defense posture of not having any tank industry?

General PIHL. Sir, we will finish the M–1 program, which I think has been a splendid program, at about 7,800 M–1 tanks. We are going to draw down a certain number of tanks as a result of the Conventional Force Reduction talks in Europe should that continue on as we expect it will.

About 4 years ago we gave up on the idea of an M60A4 program which our guardsmen colleagues had pursued in favor of an all M–1 tank force.

So yes, I believe it is very important to both qualitatively and quantitatively upgrade our forces in terms of the tank area. Now the problem we faced when we went down to $10 billion procurement for the U.S. Army is we could no longer afford a billion dollars for tanks, and to be able to buy that back would have taken the cancellation of a large number of Army programs to regenerate the same amount of TOA. So we were sort of stuck with very few choices on how to achieve our procurement reduction.

Senator LEVIN. Do you see the difference, also, though, between having no capability left after terminating the system?

General PIHL. Sir, I certainly do. As I testified in front of another committee earlier this year, when a Congressman said to me it is scary, I answered back it is scary. It is.

Senator LEVIN. Do you believe in your personal opinion that the United States as a world leader can remain a conventional power if it has no tank production capability?

General PIHL. Certainly, sir, the British and the Germans understand that and continue to fund tank production in an almost noneconomical sense, almost a subsidy, but it is their claim to being world class because they are producing world class tanks. So the answer is no, I do not think you can be world class if you do not have some sort of a world class item. Ours happens to be the state-of-the-art right now. The M1A1 is the finest tank in the world.

Senator LEVIN. If we terminate purchases for the Army and try to maintain some tank base through foreign military sales and through a retrofit, is that not going to raise the price of the tank for the foreign military sales fairly significantly?

General PIHL. Certainly, sir, from the $2 millions up to the $4 millions.

Senator LEVIN. Perhaps General McVey gets involved in this one, too, or you, Mr. Secretary. If the plans go through to mothball the tank production, is it a fair estimate that it would cost somewhat over $2 billion to mothball those plans? Is that a fair estimate?

General PIHL. They are fair estimates, sir, and they are just that, estimates. About $400 million to lay it away, $3 million per year to maintain it in a cold storage, and then about $1.2 billion, maybe up to $1.5 billion, to bring it back up. So the difference is if we have this gap of no tank production in America that lasts between the end of the funded delivery period in 1993 out through as long as

1997 or 1998, it is $1.7 billion avoided from an Army budget standpoint over all of those years. Essentially, you are spending $2 billion to lay away in order to avoid $8 billion in procurement dollars saved over that period of time.

Senator LEVIN. Then assuming that at the end of that period of time that money to restore tank production will be there because it is your plan to restore it?

General PIHL. That is the toughest call of all, sir, in my opinion, because that——

Senator LEVIN. Saving money in the short term but because it is outside of the 5-year window then saying we are going to have to have that in 1998?

General PIHL. That is correct, sir.

Senator LEVIN. That is a pretty speculative hope, is it not?

General PIHL. It is a very speculative hope, and it presumes not only that the money will be there but also that the will will be there to bring tank production back in America.

Senator LEVIN. My time is up. As I indicated, Senator Wilson had to be late, and we are delighted that he is now here with us. I said how important it has been to the subcommittee that you have been our ranking member. We welcome you, and we are delighted to be working again with you this year.

Senator WILSON. Mr. Chairman, thank you for your generous comments. I apologize for my tardiness. I have been testifying on the House side where they are concerned with the drug war and with how that is being financed. Now I come to this very important hearing where we are confronted again with the subject of war and money and specifically how we modernize at the same time we restructure the Army in a time when we are faced with declining defense spending and were even prior to the dramatic and optimistic events of the past year. They bear very much on this question because of the fact that it has been the Army who has shouldered the burden for our NATO commitment in largest part.

Now as we are compelled to figure out exactly how we go about this business of drawing down we are concerned with the character of what our residual forces in Europe ought to be, and we are presented with a series of options. We can either provide intensive fire power which leaves most of the manpower commitments to the Europeans, or we can instead provide a different approach and simply provide our own slice of what will continue to be a combined arms effort involving all the allies, perhaps even on a somewhat duplicative basis in terms of the weapons we bring to the field.

Overall, as we are compelled to cut spending, we have to decide about certain allocations to basic function, how much we are going to spend on R&D, how much to actually put in troops in the field, how much in procurement.

My own view over a long period of time, long before the recent dramatic events, has been that if we are compelled to choose between undesirable options, the least undesirable was unhappily to shrink the force structure but not to cut back seriously on R&D for fear that we would lose time that we could not buy back.

I note that Secretary Cheney is in general pursuing that course. I think he is right to do so. I note, too, that our colleague, the chairman of the House Armed Services Committee, has proposed

that in order to not abandon R&D in midcourse that we continue certain projects to completion and then in effect put the package on the shelf. There would seem to be some logic in that. In an academic sense I think it makes sense.

It is simply that as I have sought to find confirmation for the view among those both in military positions and those who are long-time observers of the defense process, I do not find a great deal of enthusiasm but, rather, skepticism first on the count that it will be difficult to verify whether or not the R&D can produce something workable if we do not produce it and test it.

Second, there is, I think, an understandable concern with the perishability, the fast obsolescence of R&D, and that has led some people to suggest that we do something very daring, something that is risky, and that is that in terms of R&D we project not to the next logical step but perhaps one beyond it simply to avoid both expenditure and to perhaps even save some time. If you are right, you save time and money. If you are wrong, you have taken a risk and lost.

I think today we are faced with some very specific choices, and your own comments, Mr. Chairman, make that clear. I would like to ask a question in that regard of General Pihl. I am reminded that at some prior hearing, and I cannot recall exactly when it was, when we had the former Chairman of the Joint Chiefs before us, Admiral Crowe, he said that there are, in effect, two ways to reduce the forces, smart and dumb. We are here this morning in the hope that we can do it the smart way.

One of the things that we are compelled to look at is the fire power and effectiveness of light units as we attempt to go lighter and more lethal.

By the way, before I get into my question to the General, I want to make a personal observation. I understand that General Pihl is shortly to retire. His contribution, I think, to the effectiveness of the Army has been just superb. I admire his professional skill and his candor. I think he is a superb officer, and I have admired him for a long time. Now that I discovered that he has chosen Sacramento, California, as the place to which he is going to retire, there is no way I can do anything but applaud the shrewd judgment of that choice.

Senator LEVIN. The chairman made a similar note but with a little less enthusiasm.

Senator WILSON. I am so enthused about it I might try to follow him there. [Laughter.]

Senator LEVIN. Is there doubt in your voice on that?

Senator WILSON. I will welcome you as a neighbor, General.

General PIHL. Thank you, sir.

HMMWV SURVIVABILITY TESTING

Senator WILSON. In the meantime, let me ask you a question about a proposal that the Army is, I guess, more than entertaining; that is, with regard to the Bradley fighting vehicle, the Army has now recomputed its requirements so that they project a need of only about 1,200 rather than the 6,700 that we had very recently anticipated to be the total run of the project. I am advised that this

reduction occurs not only from a projected drawdown in force structure but also a plan to substitute the HMMWVs for the calvary fighting vehicles. I would be interested in knowing how much of that reduction is due to force structure changes and how much to the idea of substituting the HMMWVs for the calvary fighting vehicles.

I can understand that the HMMWVs would be thought desirable for use in some of the light units, but when we are substituting light skinned HMMWVs for calvary fighting vehicles in heavy divisions, it seems to me to run counter to the Army's prior concerns about survivability. I would think that there would also be a concern about the loss of direct fire suppression since the HMMWV has no system equivalent to Bushmaster.

So my concern is put in the form of a question. Do we need now to subject the HMMWV to the same kind of live fire survivability testing that we did for the Bradley? I would be very much interested in your personal view as a distinguished armored leader.

General PIHL. Sir, I commanded a division that was entirely motorized with the HMMWV at the 9th. It was our high technology light division at the time. It is also a division slated to go off the rolls in the current reorganization. During that time we had very good experience with the HMMWV save one thing, and, of course, that is survivability. One of the things that my troops in the 9th would have had to have done is to dig in almost every place they went and put an awful lot of dirt in front of their HMMWV TOW positions. We understood that. We had, however, the fire power of a heavy division that was deployable on the aircraft C–141 and 1,600 sorties, so there was a trade in terms of mobility for fire power in that one division.

Now the question is in the heavy force, and you are quite right. The scout platoons of the mechanized infantry and the tank battalions as a proposal would give up their calvary fighting vehicle, the M–3, and would be substituted for by a HMMWV. That is a simple reflection on stopping the Bradley program before you have 720 more Bradleys to put into those platoons.

Sir, I would say to you as a cavalryman and having been a scout for most of my career, scouting is done on the ground on your belly with a pair of binoculars and with communications. The real loss is the system that overwatches you while you are out there doing that scouting, and the principal give-up is the one you cited. That is the loss of the 25 millimeter Bushmaster in overwatch.

We are obviously going to take some risk by putting people in thin skinned vehicles that are out in front of an M–1 Bradley task force doing the reconnaissance, but we do not give up the TOW. That is one thing you can put on a HMMWV. You can still fire the 3,700 meter range missile system, but we do not yet have a HMMWV with a 25 millimeter Bushmaster on it. So I think it is a fairly significant give-up.

Mr. CONVER. Senator Wilson, the first part of your question I think addressed our plan for dealing with the procurement of Bradleys, and I would be happy to address that if I correctly interpreted that.

Senator WILSON. Thank you, Mr. Secretary.

PROCUREMENT OF BRADLEY

Mr. CONVER. We have been talking to the FMC Corporation for several weeks now in light of the decision that has been made to limit the total quantities of Bradleys that we are going to buy to 600 per year for 2 years for a total of 1,200 as opposed to the 5-year multi-year 3,000 vehicles.

This gets to a point, Mr. Chairman, that you raised earlier about the industrial base. I guess I would like to make a point here in terms of the declining dollars and the threat that that poses to our procurement programs and to the industrial base that supports those Army programs.

As a matter of policy, we are looking to do anything we can to ease the burden for our loyal and capable contractors to perhaps make things easier for them and from a business point of view. We are looking for areas of mutual benefit. There are many examples of this. We are trying to help promote the foreign military sales across the board, the Italian Patriot, the Hawk multi-year. We are using special defense acquisition funds to prefinance some of those kinds of things.

As we speak today, one of my generals, Dick Beltson, is representing the U.S. Army in an attempt to work with the British and perhaps facilitate a foreign military sale of the M–1 there.

On the Bradleys we have done a similar thing. We have met and had extensive discussions with the president and CEO of the FMC Corporation, and we have arrived at an approach that I think that they find satisfactory given that they are not very happy about the quantities being reduced. That is, we are going to come forward soon with the proposal to you to take those 1,200 vehicles and stretch it from what would have been the 2-year portion of the multi-year into essentially a 4-year multi-year reduced quantities. That will allow the FMC Corporation to stay in business, preserve the industrial base.

It is going to cost a little bit more. There is a $164 million price tag associated with stretching that buy from 2 to 4 years, but we feel that it is worth it from the point of view of preserving the industrial base. We would expect the contractor to share perhaps in the additional costs of that with us as a matter of negotiation.

So our plan right now is to take the 2-year buy of 1,200 Bradleys, stretch that into essentially 4-year multi-year quantities of 400, 300, 300, and 200 and in that fashion keep the Bradley line going until requirements for new Bradley derivatives mature. These derivative vehicles, our Armored Systems Modernization program, we have two vehicles that use the Bradley chassis, and we would like to bridge the gap until we can either achieve additional foreign military sales of the Bradley or until such time as these light vehicles in the ASM program come to fruition. I think it is an example where we are really trying to work with the companies and preserve the industrial base.

Senator WILSON. Mr. Secretary, I commend you for that. I think it is a part of wisdom. It sounds as though you have thought of a number of ways that you can provide some relief for this point of expectations of the contractor in this case, including the foreign military sales. Let me just ask you in general, I assume that with

each line that you are looking at not eliminating but reducing that there is a point of no return. You can cut back your production to the point where your per unit costs go up and you actually converge, and I assume that you are doing that on each of these lines.

Mr. CONVER. Yes, sir, we are. That is perhaps most of it in force in the case of the tanks where we realize that if we do not do something to offset part of the overhead costs and so forth that the cost of the equipment will become prohibitively expensive to the point that ASM sales are precluded.

Another thing we are doing in this regard, Senator Wilson, is I have sent a memo out to all my PEOs and also to the Army Materiel Command asking them to review the dual sourcing acquisition strategies that we have across the board. I want to look at every single dual source program that we have in the Army today to see if it continues to make economic sense to buy from two separate vendors when the quantities across the board seem to be reduced. In this regard we can help our contractors.

For example, right now we have McDonnell Douglas on board as a second source producer just coming on board to produce the TOW–II missile. It looks as if the quantities are going to be such that it no longer makes economic sense to do that, so at the request of the company, really, we are taking a look at relieving them of the burden of putting the great facility costs into their plant that would not be justified in terms of the vastly reduced quantities. We would rather have one guy producing at an acceptable rate than having two people producing at less than economical rates. We are going to look at this across the entire Army acquisition budget in a very systematic way, sir.

Senator WILSON. Thank you very much. Thank you, Mr. Chairman.

Senator LEVIN. Thank you, Senator Wilson. Before I call on Senator Shelby, Senator Glenn could not be with us this morning. He is chairing a hearing over in Governmental Affairs. He spoke to me about how much he wanted to be here for many, many issues that he is interested in, but he just cannot be here. So we will put his questions in the record. I will now call on Senator Shelby.

FOG–M

Senator SHELBY. Thank you again, Mr. Chairman. General Pihl, General McVey, and Secretary Conver, I want to go back to the FOG–M. General Pihl and General McVey have spent a lot of time seeing the development of that. I would not call it the evolution but the real development and breakthrough there. Dr. McCorkle down at Redstone Arsenal has been out front on this. It is my understanding that the Army has plans for using it in the future as an anti-helicopter weapon. That is good, but it was originally thought of as anti-armor. Am I right on that, General Pihl, an anti-armor weapon?

General PIHL. Our initial approach, sir, to the FOG–M was as an air defense system, non-line-of-sight (NLOS).

Senator SHELBY. Non-line-of-sight, right.

General PIHL. Then it obviously has application in the armor/anti-armor role which I told you a year ago I charged my program manager with developing that capability.

Senator SHELBY. To follow up on the mobile force that we will be looking at down the road and the weaponry that goes with it. Suppose that it works out and so forth. Would an anti-armor capability—if it has that, and we think it would—be rather a mobile thing that would not be that heavy to move around and would have tremendous capability around the world? Do you want to comment on that?

General PIHL. Yes, sir. FOG–M, of course, will fire off of the HMMWVs, so you can use it with a 5 quarter-ton truck.

Senator SHELBY. It puts so much lethality there, does it not, in a light area?

General PIHL. Correct. In the heavy divisions we had FOG–M on the Bradley chassis so that you had the ability to march with the unit and stay in trail with the M–1 and the Bradley.

The FOG–M was one of the candidates for our line-of-sight antitank weapons system. We chose the kinetic energy missile. The kinetic energy missile is a part of the Armored System's Modernization plan to replace the improved TOW vehicle in our inventory. We felt we had the best of both worlds. We had one program manager working on LOSAT as a kinetic energy missile, and I had another program manager working on FOG–M in both the air defense and the anti-armor roles.

Our decision, quite frankly, to go to the kinetic energy missile rather than FOG–M was based on its ability to truly overmatch the target. The kinetic energy missile is about a meter long flying at the speed of a tank bullet, and literally when it hits the target it knocks the turret off rather than punch a hole through it. So we went with the largest overmatch capability. Why? Because we were coming out of the so-called armor/anti-armor crisis of 1987, and we thought overmatch was something we needed to pursue with vigor. Backstopping that, always there ready to come in if we needed it was the FOG–M program.

Senator SHELBY. How much more accurate, if it is, would the FOG–M be?

General PIHL. Sir, the FOG–M is as accurate as the person who is flying it because you are literally looking down the wire into the target. Now it does have some identification friend and foe problems if you are looking down the wire at something you do not like when the missile becomes terminal, so the gunner would need to be well trained back in his command vehicle flying this thing down range as to what the target discrimination would be.

Now the accuracy on the kinetic energy missile, as you compare it, when it flies that fast it is taking its weapons updates from a laser, and so there is no human in the loop when the LOSAT missile system is working.

LOSAT

Senator SHELBY. Have you hit anything yet with the LOSAT?

General PIHL. No, sir, we have not. We have not had a metal-on-metal catastrophic event on LOSAT.

Senator SHELBY. Why?

General PIHL. Right now we are having trouble seeing through the plume. We have brought the Texas Instruments Company into LTV, the prime contractor, to help them with their software. We have seven updates to the guidance from the laser system.

Senator SHELBY. So you are not there yet?

General PIHL. We are not there yet, sir. We are clearly in early development in a high risk program in LOSAT.

Senator SHELBY. I know you are going to leave us, General Pihl, but I do not want you to forget the potential of the FOG-M as possible anti-armor.

General PIHL. I will not forget, sir.

Senator SHELBY. Because the Army will continue to work on that.

General PIHL. Yes, sir, they will.

TANK CAPABILITY

Senator SHELBY. I want to focus again on something the chairman was getting into earlier and has a great interest in, as do I. As far as the tank capability, if our present tank is the finest tank in the world at the present time—and I do not dispute that, I am proud of the Army and the development you have done—why just stop it all at once? I know you have budgetary problems. Why not phase it out? I will tell you why. Not because it is built in Michigan and Ohio and so forth. What is going to happen to that work force down the road, the capability there as you get into the new tank? Is it still going to be there? You always say it will be, but will it?

General MCVEY. Sir, it will obviously decline. There are certain skills that we currently have.

Senator SHELBY. Are those skills very important?

General MCVEY. They are critical. The welders; the ability to roll the high hard steel is a critical skill. The skills to assemble and work the process sheets are difficult. It is the vendor base and the prime subs. We will obviously have reductions as we close the plants. There are some of our current suppliers who have been very good that probably will not survive. There are others that will find other work and may not be there when we need them again.

Senator SHELBY. General McVey, the chairman asked earlier about a nation like ours without real tank capability. We would not be recognized as a conventional power, would we? It would be hard to be a conventional power without a tremendous amount of armor, would it not?

General MCVEY. I am an armor officer; so therefore, I am also——

Senator SHELBY. Perhaps unbiased but experienced. Go ahead.

General MCVEY. Yes, and I think there are areas in the world where you get into heavy type combat and you need a very capable tank to prosecute that type of war. Would we be thought less of? I think my answer is similar to that of General Pihl. Tanks are important to land combat, and it is a very significant decision.

Senator SHELBY. General Pihl, do you want to comment?

General PIHL. Your question, sir, said why not just phase it out over time rather than stopping it all at once. We look very carefully at the Block II tank. It brings in six modernization components to the M1A1, puts on a commander's independent thermal viewer and improved commander's weapons station, special armor packages 1 and 2, positive navigation, and a CO2 laser range finder. That would, as I testified last year, increase the cost of the tank around $500,000 a copy to build the Block II.

The reason for those improvements is to have the commander fight independently from the gunner so that he is acquiring the next target that needs to be shot at as the gunner is killing the target just found. It doubles the rate of fire of the tank potential.

I think whatever we do with our 7,800 M-1s now at hand when we finish the 1991 production, we need to continue to modernize the tank fleet and perhaps not take all six as one package of those block upgrades but put the best of them on all of our tanks.

Senator SHELBY. Modernize them and keep them in excellent shape? Maintain them?

General PIHL. Yes, sir, and do not let them decay in terms of their capability because today what is the finest over time since the Soviet Union has not canceled any of their tank programs, FST-2 and 3 are still alive. They have not closed any design bureaus. They have not shut down any tank plants. They have not terminated the weapons system yet. So the point is while they are under this peace initiative kind of lulling us in terms of what is being done conventionally——

Senator SHELBY. They keep building those tanks?

General PIHL. Over time they are modernizing, yes, sir. No question about it.

Senator SHELBY. The Soviets keep building their tanks, and we are stopping.

General PIHL. They are going to build less tanks, but the tanks are going to be more modern.

Senator SHELBY. Mr. Chairman, I appreciate your indulgence.

Senator LEVIN. Thank you, Senator Shelby. Senator Wilson.

AAWS-M

Senator WILSON. Thank you, Mr. Chairman. General Pihl, I would be interested in what information you can give us on the AAWS-M system, whether or not that is on schedule, whether it is within the projected cost boundaries, and specifically would you comment whether in your judgment there is a requirement for any kind of a supplemental interim system such as the Bofers Bill or Milan-2? I would be interested in your comparing the costs to the Dragon. Essentially, I am just interested in whether or not it makes any sense to go with this interim system that some of our colleagues have suggested. If you could, I would be interested in your saying how long we would have these interim systems in the field before we could actually field the AAWS-M.

General PIHL. The AAWS-M is the centerpiece of our force modernization. It is really a part of a revolution. When you consider AAWS-M a true top attack weapons system from a missile system that weighs less than 45 pounds, it really revolutionarily changes

the dimension of the battlefield when an infantryman can carry a stowed tank kill on his back. The same thing is true in the air defense regime for Stinger RMP. So you have air defense hand-held, you have medium missile hand-held, both of which will kill a tank or an aircraft.

The AAWS-M program is on track, sir. We are in full-scale engineering development. There has been some cost growth on the contractor's point based on some software upgrades that they have had to do. Perhaps you picked up some of that in the reading of the defense press, but they are still below what the Government put in in terms of a ceiling. So this is growth that the program manager is able to accommodate within the budget request as we know it. There is no cost growth to the program beyond that that we have projected. We intend to build 58,000 of these missiles. Over time that will cost about $41,000 per missile in its true top attack capability.

Now to those who suggest a supplemental interim medium antitank system, we are going to follow the law, sir. Last year, coming out of joint conference, the law was passed that we would test Milan and Bofers side by side with the Dragon-2. We had a meeting last week with interested Members of the House. I agreed to follow the law. Of course, I always do that, but to go find the $10 million necessary to run the test and to get started as quickly as possible? One of the reasons we were able to do this is we had new information from the House Armed Services Committee Council that exposed to us what was heretofore unknown; that was, at the time they approved the money for the test they also waived the expiration of those funds in terms of R&D funds which we thought had expired on September 30, 1989. One of the things that was stopping us from running the test was that the money we were going to fund the program with was going to expire.

Now, we are not going to complete the program. We were previously directed to complete the test by June 15, 1990. There is just no way you can get there from here. From the time that we are able to identify the funds, procure the missiles, and conduct the test, it will take from 12 to 15 months to come back in with the results. We will have run a $10 million side-by-side test as directed. I will not stop short, sir. We do not need either missile system in the U.S. Army.

Senator WILSON. Okay, I think that is clear; so clear I will move to the next question. [Laughter.]

MLRS

Senator WILSON. Last year, General, this subcommittee concluded that we should add funding for selected missiles and advanced munitions where we could achieve more efficient procurements. Notwithstanding that, I note that the Army has recommended procurement of only 24,000 MLRS rockets this year, and the figures I have seen indicate that a buy of 36,000 would be far more efficient. Should the committee be considering the addition of 12,000 more of those MLRS rockets?

General PIHL. Yes, sir. Last year your committee was very supportive in increasing our missile quantities, and we appreciate that

very much. We budgeted $373 million for 24,000 rockets, as you indicate; and yes, there are economies to be achieved if we can bump that up to 36,000.

TACTICAL BALLISTIC MISSILE THREAT

Senator WILSON. Let me ask you the question that concerns the chairman as well as me. We have recently written a letter to the chairman and ranking member of the full committee having to do with the tactical ballistic missile threat, which is posed in a very obvious way if you have been reading recent headlines, to some of our non-NATO allies. It also poses a threat, I think, to our own contingency forces. If we should be required to deploy contingency forces abroad to areas like the Middle East, those forces will very likely find themselves under the range span of tactical ballistic missiles with chemical, nuclear, and biological warhead capability. What is the Army's response to counter these threats? How would you plan to defend contingency forces against tactical ballistic missiles?

General PIHL. Sir, the present anti-tactical ballistic missile capability in the Army is the Patriot, and is the Pat-II version of the Patriot missile system that gives us an interim, not a total, solution to the ATBM requirement. We have had for some years a Department of Defense ATBM program. The Army is the executor of that program down at Huntsville in our missile command, and we obviously would have to come up with an ATBM system that is beyond Patriot's capability to cope with the threat that you just described. To be very candid, sir, we are in early R&D, and we are not yet in a budgetary sense recommending an ATBM program to you; and we should be.

Senator WILSON. Yes, I think you should be, because I think that the way the world is moving, very rapidly, that the tactical ballistic missile threat needs to be very seriously upgraded, and we need to move farther and faster than it seems to me we are presently moving not only because of the very obvious threat to Israel and to a number of other allies but also because of the threat to our own forces.

You mentioned the Patriot. Nobody is here from the Navy today. That is for another day, but we are going to be putting the same question to them. When the *New Jersey* was lying offshore of Lebanon, people were concerned with small planes going out and doing great damage. I can think of a far more likely scenario that would involve tactical ballistic missiles, and I think that we need to develop something for the protection of those forces, and I think we could but we are going to have to do some things we are not now doing, and we are going to have to do them, I think, pretty fast. Thank you.

TANK PLANT CLOSURE

Senator LEVIN. Thank you, Senator Wilson. General McVey, let me ask you a question about what is involved in moving all the tools from the Warren plant to the Lima plant before the Lima plant is proposed for closing in 1993. What would be involved in that move?

General McVEY. Sir, there are 36 machine operations. Some of those machines are 5-access machines, computer controlled. Some of them are $5 and $6 million pieces of equipment. We have just recently put in a new machining facility in the Detroit plant which is a first class tank assembly plant where we have been able to reduce overhead and still put out the quality product. A part of that was going down about 11 or 12 feet into concrete to get the base to make this machining operation balance.

To move all those at this point no longer makes a lot of sense for the following reasons. When we planned to shut down Detroit and move the tooling, the plan was then to have one total plant at Lima where we would continue Abrams production. Now with the plant closure being focused in April 1993, we have passed the window where we can move those because if we move them now we would have to shut down or have a break in production. It is a significant operation to move some of the major tooling machines that we do have in the Detroit facility, and it will take some time and a significant amount of dollars.

Senator LEVIN. About how much would it have cost if we had proceeded?

General McVEY. The number was $17.4 million to move just those machines.

Senator LEVIN. Secretary Stone personally told me that the Army now believes it makes no sense to move those tools. I gather that is your bottom line statement here this morning as well?

General McVEY. For two reasons: one, we do not have the money in the budget to move them even if we wanted to at this point; and two, because we are looking at the possibility of the plant closure. It is a cost avoidance, and we would have to shut down current production or have a break in production while we moved the facilities. So yes.

Senator LEVIN. General Pihl, do you agree it makes no sense to move those tools?

General PIHL. I do, sir.

Senator LEVIN. Mr. Secretary, do you agree?

Mr. CONVER. Yes, sir.

Senator LEVIN. Let me ask you a question about the replacement of the Sheridan tank. You were asked by Senator Thurmond about this question. Mr. Secretary, you indicated there is going to be a competitive program for that replacement in next year's budget, and I am just wondering if you can tell us approximately what the size of that program is? How many of those do you expect you will be purchasing?

Mr. CONVER. The plan right now, sir, is to start funding the RDT&E portion of this with modest funds in 1992, start procurement in 1994 leading to a procurement of 71 vehicles over a 2-year time period.

Senator LEVIN. So it would be 1994 or 1995?

Mr. CONVER. Yes, sir.

LIGHT HELICOPTER (LH)

Senator LEVIN. On the LH, the Army, as I understand it, has no plan for a prototype phase for the next generation of LH, and I am

curious as to why it is that you want to prototype for ground combat systems but not for the new helicopter.

Mr. CONVER. Sir, again I think the reasons boil down to cost and time, probably in that order. With the recent developments in Eastern Europe, I think the time argument pretty well goes away, but the cost argument does not. Our initial look at doing prototypes in the full-blown way suggested that that would add about $1 billion to the development of the program. In the budget environment in which we are operating, we did not feel that was affordable. It is possible, however, that the prototyping could be done in a way that would be more modest in terms of its cost and time impact. Maybe it could be done in a way that would not involve both competing airframe teams; but as yet we have to work out the details in such a program, and we currently have not planned for such a program in the current structure.

Senator LEVIN. Now is there a cost involved when you use a prototype for ground combat systems?

Mr. CONVER. Yes, sir.

Senator LEVIN. But you are not dropping that?

Mr. CONVER. No, sir. I think the approach on the aircraft of the helicopters, we are not strictly against prototyping of helicopter systems. In this instance we feel that the major challenge in the LH lies in the mission equipment package; therefore, there is a lesser challenge involved in the airframe aspects of it. So developing prototype airframes to us does not represent the major challenge in the program and, therefore, the additional cost of doing a prototype is just something we have chosen not to build into the current program.

APACHE RELIABILITY

Senator LEVIN. On the Apache maintenance question that has been raised, I note a number of articles in the press. There have been some reports about serious maintenance problems with the AH-64, and the GAO has reported that those problems are so serious that the Army should cancel the last year's buy and divert the funds instead into a corrective action program to fix the problems. What do you think? Should we cancel the last year's procurement to fix those problems?

Mr. CONVER. No, sir, absolutely not. I have talked to the GAO folks. I have had them in my office. I have been involved in this issue probably more than perhaps I wish I had been. The suggestion of the GAO that we forego the last 2 years of Apache procurement to my mind—and I told the GAO guys this—does not follow from the findings that they reached on Apache reliability and maintainability. It is a fairly tremendous leap of logic to say that we should forego a billion or so dollars worth of Apache procurement that is already authorized and appropriated essentially and devote that money to fixing the Apache reliability problems. There is no connection between those two things.

We realize that we have problems on Apache reliability, and we are actively involved in trying to solve those. By and large, we are not dealing with problems that can be solved nor should we at-

tempt to solve them by trying to throw money at them, certainly not a billion dollars.

Now one suggestion that my personal action team from my office has recommended that does involve money is we could consider the possibility of having contractor representatives supporting the Apache battalions inside the continental United States much as we do in Europe. If you put five contractor representatives in each Apache battalion in the United States, the total cost of that would probably be around $15 million a year. That is a far cry from a billion. So the cost involved in even doing these rather extraordinary things is very modest in comparison to the cost of buying 132 Apaches. So we definitely would not be in favor of that suggestion.

REDISTRIBUTION OF EQUIPMENT

Senator LEVIN. Just a few additional questions, then I will be finished and we will turn to Senator Wilson. On the question of redistribution of equipment to Reserve components, as the Army shrinks there is going to be a lot of equipment redistributed to the Reserves. I am wondering if you would provide us for the record a detailed analysis of what equipment is going to be made available to the Reserves item by item? Can you do that?

Mr. CONVER. Yes, sir, we will. I guess I would want to add the qualification that the results of the conventional force, the CFE discussions, will determine in very large measure what is going to be done in this area. Our plans at the present time may quickly be rendered obsolete by those agreements.

[The information follows:]

REDISTRIBUTION OF EQUIPMENT TO RESERVE

The Army staff is currently working in close coordination with the National Guard Bureau and the Army Reserve on the issue of equipment redistribution made available through projected inactivations of units. This analysis considers all aspects of equipment fielding, to include: modernization plans; documentation of equipment and personnel in units; readiness needs; transportation costs; personnel requirements (both quantity and job specialty training); and new equipment training programs. A thorough analysis will preclude readiness degradations and minimize costs associated with transportation of the equipment to the ultimate claimant. The analysis for fiscal year 1990 is due to be completed in early July 1990. At that time a listing of these systems and the National Guard/Army Reserve claimants will be provided.

TANK PRODUCTION

Senator LEVIN. Back to you, General Pihl, for one question on the tank that I failed to ask. You have indicated your support in a number of ways for maintaining tank production capability, and I gather from your statement that you can foresee at least some possibility for future M-1 tank production for the Army beyond the 1991 request. Is there at least some possibility of that?

General PIHL. Beyond the 163 M1A1s and the——

Senator LEVIN. If we maintain that production for those other reasons.

General PIHL. Yes, sir.

Senator LEVIN. That you also foresee some possibility at least for future tank needs?

General PIHL. One of the solutions, Senator, that we have explored is what is called trickle production to maintain that capability. I do not know what the economic number is, 60 per year or 160 per year or 360 per year, but when you take a look at it from a national standpoint as you have from your questions this morning, there is a possibility that there would be some ability to continue tank production in those years. In my personal view, that would be good for the modernization because we would be adding to the force M1A2s rather than M1A1s.

Senator LEVIN. Thank you again. General, again, best of luck to you in your new career.

General PIHL. Thank you, sir.

Senator LEVIN. Senator Wilson.

Senator WILSON. Thank you, Mr. Chairman. Mr. Chairman, I would first move to place in the record questions from Senator McCain regarding the AH-64 Apache helicopter.

Senator LEVIN. They will be made a part of the record.

LH PROGRAM

Senator WILSON. Next, Secretary Conver, the Army has repeatedly identified the LH program, the light armored scout helicopter program, as their most important modernization initiative. Could you briefly indicate just exactly what you believed to be the tactical and operational advantages that this program will have in comparison with a comparable mix of current helicopters?

Mr. CONVER. Yes, sir. We went over a bit of this with Senator Shelby, and I would summarize by saying the LH offers significant advantages in its versatility, lethality, survivability, deployability, and also from a cost point of view, primarily in the operating cost area.

Versatilitywise, the LH will perform across the entire spectrum of conflict. That is the basic advantage.

In lethality, we are preserving our advantage in our lethal systems. The LH will be very capable in each of three missions: the air to ground, the armed reconnaissance, and significantly the air to air capability which will be present to a degree never before realized in an Army helicopter.

On survivability, we have both the low observability features to make the aircraft more difficult to detect and the ballistic protection that makes it more survivable if it should happen to take a hit.

In deployability, we can deploy the LH on any fixed wing aircraft including C-130s, any transport aircraft, and it is also self-deployable to Europe carrying external tanks.

In terms of operating costs, we are building reliability and maintainability into the aircraft. We hope that by emphasizing reliability and maintainability in the source selection and emphasizing operating costs that we will not be plagued in this machine with the kinds of problems that have occurred in the Apache and to some degree in the CH-47 programs.

We are really turning our attention in the source selection, making it very clear to the contractors that reliability, maintainability, and operating costs are key features. So in just a quick few

words, those are what I would consider the main advantages of the LH over the current generation.

GRENADE LAUNCHER PROGRAM

Senator WILSON. Thank you. General Pihl, the Army has indicated that it intends to terminate the Mark-19 40 millimeter grenade launcher program, one of the lighter and more lethal weapons that we have developed in recent years. I was surprised in light of the great enthusiasm previously displayed by the Army, and I am told that part of the decision is that it should not be put into the system in heavy divisions. I frankly do not understand that because it seems to me that it would have greater utility there forcing infantry to seek cover and their personnel carriers forcing tanks to button up. It seemed to me that it was a great way to provide increased fire suppression. What is the explanation for that?

General PIHL. Sir, as we looked at the weapons systems that Senator Levin showed and the list of kills, we killed the Mark-19 program simply because of affordability, but that also was followed by the takedown of the 9th Infantry Division Motorized, which was the primary unit to use the Mark-19. It was the secondary weapons system to the TOW in the division I commanded for 2 years. In fact, the 9th was the first unit equipped. I have a lot of experience with the Mark-19 40 millimeter grenade launcher. From there, we really wanted to use it in our combat support/combat service support forces in place of the M–2 50 caliber machine gun, but as we looked at the dollars and the value added from the Mark-19 program for combat support and combat service supports, we made a risk decision and canceled the program.

LESSONS LEARNED FROM OPERATION JUST CAUSE

Senator WILSON. Let me ask this final question. I am very curious as to what we may have learned from Panama. With an opportunity to move fast with light contingency forces, what did we learn from Panama, and from those lessons are there any implications with respect to R&D programs?

General PIHL. Sir, we learned that quality soldiers who have had tough realistic training and are under the leadership of competent leaders with the right mix of heavy, light, and special operating forces can perform rapidly in a mission as we were faced with in the Just Cause environment.

From a warfighting doctrine standpoint, the ability to reinforce already deployed forces in Panama, we think that was a success.

From a focus modernization standpoint in terms of hardware, the one thing we learned was that the Sheridan is not up to speed in terms of performing in that kind of environment, and we need an armored gun system to take its place as we have testified to today.

The rest of the equipment that we had performed as we expected: the Apache; the Black Hawk; the CH–47D; the M–113; the night vision goggles; commo; and our intelligence systems worked the way we expected them to.

So, from a modernization hardware perspective, the need to change the Sheridan in the 82nd Airborne for a modern assault gun is the one key lesson that we learned from that experience.

Senator LEVIN. The night vision goggles worked?

General PIHL. Superbly, sir. It was really the first test at the end of six which is the night vision goggle explicitly designed for helicopter operations, and our pilots were able to operate in the nighttime as if it were day.

Senator WILSON. Gentlemen, thank you very much, and General, good luck to you.

General PIHL. Thank you, sir.

Senator WILSON. Thank you for a superb job.

General PIHL. My pleasure.

Senator LEVIN. On that Panama issue that Senator Wilson raised, I understand that the Army actually had to borrow light armored vehicles from the Marines.

General PIHL. That is correct, sir. The LAV-25 is in the Marine Corps inventory and not in the Army inventory.

Senator LEVIN. Again, my thanks to all three of you, and we will stand adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

M-1

Senator LEVIN. If the Army does terminate the M-1 program, what percentage of the M-1 fleet will be Block 2 tanks?

Mr. CONVER. ¾ of 1 percent of the M-1 fleet will be M1A2s (62 of 7,847 Army M-1 types, or 62 of 8,068 including USMC M-1s).

Senator LEVIN. Last year you testified that the Block 2 M-1 tank was needed to counter the Soviet FST-2 tanks. Is that correct?

Mr. CONVER. It is correct that last year's testimony included the statement that the M1A2 was needed to counter the FST-2. Threat intentions and capabilities at that time supported this statement.

Senator LEVIN. What percentage of the M-1 tank fleet will not be able to fight head-to-head against the best Soviet tank?

Mr. CONVER. Through the mid-1990s (until the FST-2 is fielded), all 120mm U.S. tanks are superior to the FST-1: 42 percent of the fleet (3268/7847 tanks). After the mid-1990s, all 120mm U.S. tanks equipped with AEI ammunition will be able to defeat the FST-2 head to head: 42 percent of the fleet (3268/7847 tanks).

Senator LEVIN. Last year you testified that a Block 2 M-1 would be 50 to 100 percent more effective that a Block 1. How much more capable is a Block 2 compared to the original M-1 tank?

Mr. CONVER. The Block II cost effectiveness analysis (COEA) measured the M1A2 against the M1A1, but did not compare it to the basic M-1 tank. However, the 1984 COEA supporting the Block I development program showed an effectiveness ratio increase of the M1A1 over the M-1 of 1.32:1.

Senator LEVIN. In light of these facts, wouldn't it make good warfighting sense to upgrade the early model M-1 tanks into the Block 2 configuration?

Mr. CONVER. That possibility is one of those now being looked at in the retrofit study. The big limiter of course is funding, as the cost to retrofit an M-1 to an M1A2 would be greater than to retrofit an M1A1 to an M1A2. If sufficient funds were available, however, that could be a worthwhile option to pursue. Several years ago the Army studied the upgrading of the Abrams 105mm fleet to the 120mm gun, which would be accomplished at Anniston Army Depot. The conclusion was it was more cost effective to produce new M1A1s than up-gun the older fleet.

Senator LEVIN. If a conventional arms treaty is negotiated that limits tanks in Europe, the only way to get more capability is through qualitative improvements, not quantitative improvements, to the tanks. With this in mind, wouldn't it be helpful to upgrade the early model M-1 tanks?

Mr. CONVER. If funding were available, an upgrade to either the older M-1 tanks or to the newer M1A1 heavy armor tanks now being deployed in Europe would be feasible. Again, funding is the limiter.

ARMORED SYSTEMS MODERNIZATION (ASM)

Senator LEVIN. If we exclude the funds earmarked for common chassis, what percentage of ASM funding over the next 5 years goes for:
—a new tank;
—a new fighting vehicle;
—a new artillery system;
—a new combat engineer system;
—a line of sight anti-tank system (LOSAT);
—an artillery resupply vehicle?

Mr. CONVER. Excluding the common chassis funds, the percentage of ASM funding over the next 5 years for each system is as follows: Block III tank, 38.8 percent; Future Infantry Fighting Vehicle, 0.4 percent; Advanced Field Artillery System, 10.9 percent; Combat Mobility Vehicle, 5.9 percent; LOSAT, 41.1 percent; Future Armored Resupply Vehicle-Ammunition, 2.9 percent.

LIGHT HELICOPTER (LH)

Senator LEVIN. Originally the LH program consisted of two sets of helicopters—a scout that could replace older scout and attack helicopters, and a cargo variant. Two years ago the Army terminated the cargo variant. The Army of the future is going to be much smaller than it is today. Is it still cost-effective to spend $4 billion to develop a new helicopter for a much smaller Army?

Mr. CONVER. The LH is worth the investment. As I have said before, the LH solves the most critical deficiency in Army aviation. That is seeing the battlefield and being able to conduct armed reconnaissance at night and in adverse weather. The program total quantity for the LH was reduced to 2,096 helicopters, a quantity which allows us to take advantage of large scale procurement efficiency.

Even with the possibility of a reduced total quantity to 1,875, the LH flyaway cost will remain at $7.5 million. Cost could increase by no more than 18 percent at fairly low quantities. The Government will control these costs by securing production cost commitments from each contractor team during the full scale development (FSD) source selection and requiring the winning contractor team to manage their cost requirements throughout the life cycle for the LH.

EQUIPPING THE USAR/ARNG

Senator LEVIN. As the Army shrinks, there will be a lot of equipment that can be redistributed to the Reserve components. What will the plans be for the following types of equipment:
—M-1 tanks;
—M-2 fighting vehicles;
—Multiple launch rocket systems;
—Helicopters;
—Trucks and wheeled vehicles?

Mr. CONVER. The Army staff is currently working in close coordination with the National Guard Bureau and the Army Reserve on the issue of equipment redistribution made available through projected inactivations of units. This analysis considers all aspects of equipment fielding, to include: modernization plans; documentation of equipment and personnel in units; readiness needs; transportation costs; personnel requirements (both quantity and job specialty training); and new equipment training programs. A thorough analysis will preclude readiness degradations and minimize costs associated with transportation of the equipment to the ultimate claimant.

Senator LEVIN. Will you provide a detailed analysis on what equipment will be made available to the Reserves as the Army shrinks?

Mr. CONVER. The Army staff is currently working in close coordination with the National Guard Bureau and the Army Reserve on the issue of equipment redistribution made available through projected inactivations of units. The analysis for fiscal year 1990 is due to be completed in early July 1990. At that time a listing of these systems and the National Guard/Army Reserve claimants will be provided.

QUESTIONS SUBMITTED BY SENATOR ALAN DIXON

FUTURE CHANGE IN DOCTRINE

Senator DIXON. I gather that the Army is now in the very early stages of considering a possible future move from its current warfighting doctrine to a dramatically

different, more offensive-oriented, approach. From what I understand, this new doctrine would require entirely new and highly sophisticated weaponry—in essence a dramatically different force structure from what we have today. I realize that these are in all likelihood futuristic plans in their early stages, but how are you factoring this type of possible future change in Army doctrine into your current planning on force structure and modernization?

Mr. CONVER. AirLand Battle, the Army's contemporary doctrine, provides the basic rationale for designing forces, determining materiel needs, conducting training, and developing leaders. It establishes the foundation for the Army's preparedness for the battlefield challenges of the 1990s and beyond. While AirLand Battle focuses primarily on mid-to-high intensity warfare, its tenets—initiative, depth, agility, and synchronization—apply in all theaters across the operational continuum.

As part of the normal, evolutionary doctrinal process, the Army explores concepts focused on the future. Our current conceptual initiative, AirLand Battle-Future, is being developed to portray how the U.S. Army will conduct joint and combined operations to meet its worldwide commitments some 15 years in the future. The rudimentary basis for this new concept is rooted in our current doctrine, AirLand Battle. This concept does not radically depart from current doctrine; rather, it builds upon it to fully address military operations in war, conflict, and during peacetime competition. When fully developed and validated via analysis, it will also provide insights to drive evolution of equipment, organization, training, and leader development.

As our doctrine evolves, so too must the composition and modernization of our forces. It is imperative that we maintain a balanced, modern mix of heavy, light, and special operations forces in our Active and Reserve components required to apply our doctrine. Likewise, our modernization strategy must guide the development and fielding of future equipment, placing priority on those units whose missions require them to be the first ones committed to military operations.

Senator DIXON. Are you going to come back in 10 years and tell us that you need a whole new set of weapons systems to satisfy a new doctrine? Or do your current modernization plans account for possible future changes in the Army's approach to fighting wars?

Mr. CONVER. Our modernization plan sets the stage for transition through this decade and to the next century. The smaller force must be flexible, deployable, and sufficiently lethal, both with nuclear and conventional capability, to meet and defeat all potential threats to vital, national interests. Acquisition efforts of the 1980s provide a legacy of solid programs critical to the ability of the Army to meet regional threats in the 1990s. Completion of this important modernization of key systems is reliant on the fiscal year 1991 budget which will provide the items to equip a force well-structured for the transition to the next century.

Senator DIXON. How would you respond to the argument that this is yet another basis for the belief that we should not get locked into a new generation of conventional weapons if we are uncertain about what our future doctrines and needs will be?

Mr. CONVER. Changes in the global security environment have occurred which require the U.S. Army to adapt. Such changes will continue to be unpredictable and reversible. The Army leadership readily accepts its responsibility to provide a clear and concise strategy to guide the Army through the turbulent time and to hedge against uncertainty. This strategy recognizes the instability in the Eastern bloc, and the emergence of developing nations, many with high technology weapons, some with the capability for mass destruction which could threaten our vital interests and military options. Our modernization and force structure initiatives for the 1990s and beyond clearly respond to the global environment, evolving joint and Army doctrine, and the demands of our national economy.

We will modernize the force for the 1990s and beyond within budgetary constraints. As resources decline, it will be necessary to maintain a strong tech base to prevent technological surprise and provide the bridge to future modernization. Sound programs, based on prudent consideration of the threat and resource constraints, will provide the United States essential capabilities needed to meet or exceed potential enemy capabilities, and will protect the force from enemy modernization initiatives and technological surprise. Our goal is to invest in technologies enabling us to equip our forces with the overmatching warfighting capabilities necessary to defeat increasingly capable threats worldwide.

OVERSEAS FORCE STRUCTURE

Senator DIXON. I am concerned about how the Army is handling the issue of its increased future needs for airlift and sealift capabilities. I realize that these kinds of programs do not belong to the Army. Yet it is obvious that you will be more and more dependent on these types of capabilities as we draw down forward deployed forces, or in other words, as we begin withdrawing significant amounts of our overseas force structure. How are you handling these issues in your current force structure planning?

Mr. CONVER. The Army of the 1990s will be a smaller and less forward deployed force. However, even with a Conventional Forces Europe Treaty, there will still be a heavy force requirement in Europe through the 1990s. Heavy forces will also be required to meet mid-intensity threats globally in regions such as the Middle East and Southwest Asia. As the Army downsizes, it must maintain a balanced mix of both heavy and light divisions that are versatile, deployable, and lethal.

The success of Army forces in supporting national policy has always been dependent on the coordinated development and coordinated employment of land, sea, and air forces. If the Nation goes to war, the Army will not and cannot fight alone, but must fight in concert with the other services. To enhance deterrence and ensure that strategic missions assigned to the Army can be executed consistent with emerging national military strategy, the Army requires modern airlift capable of transporting a mix of heavy and light forces anywhere in the world. The Army also requires fast sealift to rapidly deploy its heavy forces or reinforce early committed Army and Marine forces with heavy combat, combat support, and combat service support forces. A rapid power projection capability is an essential element of credible deterrence. Deploying forces in a crisis, to establish a strong forward presence or to reinforce forward deployed forces of any service, can strengthen deterrence and prevent hostilities. The C-17 facilitates contingency operations which are the most likely future scenario. Using the C-17, the Army can deliver a tailored mix of forces and equipment to respond to any threat. With existing fast sealift ships, the Army can deploy a heavy division and corps level CS/CSS to Southwest Asia in about 3 weeks. As part of a joint task force, the Army can provide unique capabilities such as ground-based air defense, heavy armor, or robust engineer capabilities. Further, by putting the right mix of forces on the ground early, the need for even larger forces later may be precluded.

Senator DIXON. Have you taken steps to encourage the other services to pay more attention to these aspects of our Nation's force structure?

Mr. CONVER. We have worked hard with the other services, the Joint Staff, and the OSD in evaluating the adequacy of the POM force. The Department of Defense recently completed the major aircraft review. Army input was essential in defining future airlift requirements that stressed the need to go forward with the C-17 program. We also are participating in similar Joint Staff studies involving future sealift requirements.

LIGHT HELICOPTER (LH)

Senator DIXON. I read in this week's Defense News that the Army is expected to cut spending in half for its helicopter programs beginning in fiscal year 1991. According to the article, this would require a decrease in total planned procurement of the LH from 2,096 to 1,875. Won't this production rate decrease drive the cost of each helicopter even higher than it already is, and mean that this system will absorb an even greater relative portion of the declining overall Army helicopter budget?

Mr. CONVER. The Demonstration/Validation (Dem/Val) program objective is to achieve the best LH system which meets the 7,500 lbs. combat empty weight and $7.5 million (fiscal year 1988 dollars) unit flyaway cost for 2,096 aircraft at 216 per year peak rate. On-going force structure alternatives do include potential lower quantities and production rates for the LH program. Every alternative under consideration maintains the light fleet replacement concept for the LH, with total quantities not sufficiently below 2,096 to cause a significant perturbation in program economics.

We will continue to require that competing LH industry teams pursue performance/weight/cost tradeoffs to achieve the best aircraft system to meet program goals.

The LH full scale development solicitation emphasizes submission of industry proposals that provide the Government with the most value for the least cost and will be heavily weighed during source selection.

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

TANK PRODUCTION

Senator GLENN. During my recent visit to the Soviet Union, I was told that the Soviets intend to keep three of their five tank plants in operation, producing 1,500 modern tanks a year. The U.S. Army's plan is to terminate all tank production in this country for at least 5 years. As I understand it, when the production is terminated, the Army will have only produced 62 of the modern M1A2 models. Given the Army's repeated testimony and your personal statements to this committee over the past few years regarding the imbalance in our armor/anti-armor capability with the Soviets, and the proliferation of heavy tanks in the Third World, is it an acceptable military risk to shut down all tank production capability in this country?

General PIHL. The Army's budget constraints, as well as the changing world situation, caused us to re-evaluate our weapons procurement strategy. Although the Soviet Union will continue to modernize over the long term, revised estimates indicate this modernization may take longer and be accompanied by additional force reductions. The current world situation would indicate that we are in a period of reduced Soviet threat for the next several years. Given the reality of this reduced threat, we have assessed our current and future tanks needs and decided to concentrate on the future rather than produce a tank sufficient only for the mid-term. At the end of M1A1 tank production in fiscal year 1993, the U.S. Army will have over 7,700 M-1s and M1A1s on hand. This will include over 2,200 M1A1s with depleted uranium armor protection. These are sufficient to meet the needs of our first-to-fight forces.

Senator GLENN. In your testimony you state that the Army would ". . . prefer to preserve the (tank) industrial base . . .", and that the Army is placing its hopes on the "willingness" of Congress to restart tank production after a "pause" of several years. It would seem to me that closing our tank production industrial base for at least 5 years is more than a "pause." Has the Army conducted an in-depth study of the potential impact, including cost and schedule, of shutting down our tank production base? If so, what were the results?

Mr. CONVER. A team headed by the Tank-Automotive Command with participation from the Program Executive Officer for Armored Systems Modernization, and Project Manager-Abrams is now working with General Dynamics, Land Systems Division, and other major suppliers to (1) analyze strategies, cost estimates, and time-phased plans for closure of Abrams tank production to include critical vendors; (2) analyze "trickle" production rates of 10-15-20-30 tanks/month. Additionally, analyze alternative ways of performing component machining at DATP and develop other cost reduction initiatives; (3) establish a plan to support spares production; and (4) establish a strategy, cost estimate, and time-phased plan for tank production facilities for a restart from a cold production base (both Block III and Abrams M1A2 scenarios). Facilities included in the study are the Detroit and Lima tank plants, Allison Transmission Division, General Dynamics Land Systems plants (Scranton, PA and Sterling, MI), Stratford Army Engine Plant, AMCCOM Government Furnished Material Suppliers (Hughes Aircraft Company, Computing Devices of Canada, Rock Island Arsenal, Watervliet Arsenal), and Special Project Facilities. The final study is estimated to be completed in August 1990.

LIGHT HELICOPTER (LH)

Senator GLENN. In your testimony you state that the LH will take Army aviation into the 21st century. I would agree with you as far as the avionics and weapons system are concerned; however, in my opinion rotary wing technology may not be the most combat effective approach in the 21st century. I understand that the Marine Corps is investigating a tiltrotor concept to replace its light attack helicopter fleet. It would seem to me that the weapons system proposed for the LH, when integrated in a more versatile tiltrotor aircraft, may provide a better approach to meeting the Army's LH requirement. As the Army has recognized, because of the changing world situation, we now have time to explore many alternatives to meet the Army's operational requirement for the LH mission. Has the Army thoroughly investigated a tiltrotor approach to meeting the LH requirement?

Mr. CONVER. Yes, the Army has thoroughly investigated a tiltrotor approach to meeting the LH requirement. The Marine Corps has different requirements based on employment concepts and mission. They selected tiltrotor for their medium lift V-22, but are sticking with their upgraded Cobra helicopters. Tiltrotor was intensively studied by the Army as an alternative to a light helicopter, particularly in

1986 and 1987. These studies, some by independent organizations, led to the decision that the tiltrotor would not meet the Army's operational requirement.

Senator GLENN. Regarding the previous question, if the answer is yes, is it possible to revisit the alternatives including the tiltrotor approach? If the answer is no, will the Army study the tiltrotor approach to meeting the LH requirement before a final approach is selected?

Mr. CONVER. The Army revisited its decision for an advanced helicopter vice the tiltrotor through independent studies conducted by both RAND Corporation and the Institute for Defense Analysis. Both independent studies conclusively verified that the Army made the correct decision. Other alternatives are and have been studied during the helicopter review and the LH Cost and Operational Effectiveness Analysis (COEA), which are both in progress.

QUESTIONS SUBMITTED BY SENATOR RICHARD C. SHELBY

CHEMICAL WEAPONS

Senator SHELBY. Mr. Conver, I would like to ask you about recent testimony of yours before the House Armed Services Subcommittee on Research and Development. According to testimony, Congressman Dickinson expressed to you his concerns over the proliferation of chemical weapons in the Third World and that the Army felt it was important to have a school to train our soldiers defensively in the use of toxic, chemical, and nerve gases. Congressman Dickinson went on to state that the Army has spent millions of dollars to develop this capability and that the Army feels that we still need this capability. I share these concerns. You stated that the Army has yet to come to grips with this issue. Later, Congressman Browder asked General Pihl if there would be any disruption in our capability if we are to close down the Army's Chemical School and decontamination facility and move it elsewhere. General Pihl answered, and I quote: "Sir, certainly there would be disruption. The live agent test facility, brand new, which Mr. Dickinson referred to, the Army is trying to figure out a way we can keep that open." I agree with the statements of my colleagues. I believe the Army's Chemical School is vital to our strategic interest. Approval to build the decontamination training facility at Fort McClellan and conduct the training was secured only after a lengthy environmental assessment process involving the community, studies by the Army Surgeon General, and briefings to other authorities. Has the chemical weapon threat changed?

Mr. CONVER. The global chemical threat to the U.S. Army has changed and, in fact, has increased.

The Warsaw Pact, principally the Soviet Union, maintains a formidable chemical capability, one that the intelligence community has attributed to it for many years, and which the U.S.S.R. has only recently acknowledged existed. In spite of their insistence in the open forum about wanting a chemical weapons treaty to eliminate chemical weapons, we know they maintain a large chemical weapons stockpile, and continue research and development of new chemical agents and weapons. However, if the Soviets are sincere in their desire for a bilateral or multilateral reduction in chemical weapons stockpiles, the current proposal calls for a 10-year destruction period. Additionally, the Soviets were not required to declare newly developed chemical weapons agents under the provisions of the Memorandum of Understanding. Consequently, until the startling events in Eastern Europe run their course, a continued Soviet chemical weapons threat cannot be discounted, even if declared stockpiles are destroyed.

Worldwide chemical weapons proliferation during the last decade has increased dramatically and is responsible for an increased chemical weapons threat to U.S. forces. Most notable in recent years has been the development and use in war of chemical weapons agents by Iran and Iraq, and the development of a significant chemical weapons capability by a number of other mideastern countries including Libya and Syria. The Middle East, with its many hostile regimes possessing chemical weapons agents, is a likely area of future military conflict which may involve U.S. forces. Additionally, several countries in South Asia and the Asia/Pacific area either are interested in or possess similar capabilities. Chemical weapons agent proliferation continues to gain momentum among Third-World countries because chemical weapons agent capabilities are relatively cheap; current trade restrictions are not effective; bilateral chemical weapons agreements do not affect Third-World chemical weapons capabilities; and those Third-World countries desiring a chemical weapons capability can obtain it.

For these reasons, it is imperative that U.S. chemical weapons defensive capabilities be maximized. There is a serious need to maintain well-trained chemical corps soldiers to execute and oversee U.S. chemical training in the foreseeable future.

CHEMICAL WEAPONS TRAINING

Senator SHELBY. Do you believe that the Chemical Weapons School is vital to United States interests?

Mr. CONVER. Yes. The U.S. Army Chemical School conducts training in chemical defense, as well as nuclear and biological warfare defense. This training provides a cadre of experts worldwide not only throughout the Army but the Navy and Marine Corps as well. The U.S. national policy of deterrence is founded on a credible retaliatory capability together with strong nuclear biological chemical (NBC) defense. Treaty initiatives may well shift the burden to nuclear biological chemical defense. As a result, nuclear biological chemical defense training must be strengthened, not lessened, to prevent surprise. Training in a live agent environment is a unique and vital aspect of NBC defense training. The training received in the Chemical Decontamination Training Facility (CDTF) not only lends credibility to chemical soldiers when they train others in defensive measures, it also reduces elements of fear and self-doubt which could be life threatening on a contaminated battlefield. Only proven confidence in protective equipment and individual abilities will lead to survival in a contaminated environment. Effective training provides the key to survival and sustained operations in an nuclear biological chemical environment. The Chemical School provides this critical and unique training.

Senator SHELBY. Can this training be conducted anywhere else?

Mr. CONVER. Yes, however, environmental considerations comprise a major factor in the conduct of nuclear biological chemical training, as performed by the Chemical School. The very nature of this training demands unique conditions and requirements.

The Chemical Decontamination Training Facility is the only live agent training facility in the Western World. Construction of another facility would involve the lengthy and very technical process of obtaining approved environmental assessments before construction could begin. It took 8 years to construct the CDTF at Fort McClellan because of these environmental assessments.

Radiological training is a basic aspect of the nuclear biological chemical defense training conducted by the Chemical School. Hands-on training instills confidence and provides valuable experience in dealing with radiological contamination. The Chemical School radiological laboratories are specially designed to safely conduct this training. Laboratories of this kind fall under the standards imposed by the Nuclear Regulatory Commission (NRC) and must therefore be able to pass stringent inspections to be licensed.

The Chemical School also provides training in smoke operations. The very nature of smoke training requires large areas away from public highways, housing areas, air fields, etc. To be realistic, the training area must also provide mixed terrain for training in all types of environments. This type of training also requires completed environmental studies before it can be conducted at another location.

The most critical hurdle in the conduct of nuclear biological chemical defense training may lie in gaining support for construction of new facilities and training areas from any proposed host state.

Senator SHELBY. Where would the other services, who depend on the Army for chemical weapons training, find training?

Mr. CONVER. The U.S. Army Chemical School provides training for the Navy and the Marine Corps. The Air Force is the only other service offering nuclear biological chemical related training and then only as an aspect of their disaster preparedness training at Lowry Air Force Base, Colorado. Under the Army's proposal, the U.S. Army Chemical School would be moved to a new location, not closed. Other services could continue to train at this new location.

Senator SHELBY. Why would you want to move the Chemical Corps from its present location?

Mr. CONVER. The proposal to close Fort McClellan was made because it is one of our smallest training centers. With a smaller force there will be a smaller training load, particularly with respect to Initial Entry Training (IET), enabling consolidation of training activities. The three major tenants, the Chemical School, the Military Police School, and the Defense Polygraph Institute would have to be separated and consolidated on other TRADOC installations. This has the potential for better efficiency and cost savings.

UNMANNED AERIAL VEHICLE

Senator SHELBY. How will the Unmanned Aerial Vehicle program evolve in the years ahead?

Mr. CONVER. The Unmanned Aerial Vehicle (UAV) Joint Project Office (JPO) is the central management authority for all Department of Defense nonlethal UAV system acquisition efforts. Each year the JPO, with assistance from the services, submits to Congress a master plan that provides the status of nonlethal UAV programs and an overview of requirements, program plans, management, and strategies.

The Department of Defense UAV acquisition strategy includes harmonizing operational requirements, developing system specifications after the services have hands-on operational experience, procuring off-the-shelf technologies for initial systems, conducting advanced research and development that enhances future capabilities, maintaining equipment interfaces and interoperability, and employing a competitive evolutionary acquisition process.

In carrying out that strategy, the JPO will initially procure the short range UAV system, which establishes critical system interfaces to ensure follow-on procurements of other members of the family of UAVs are interoperable. The short range UAV system is considered a non-developmental item (NDI) and is assigned to the Army Unmanned Aerial Vehicle (AUAV) Project Office at Redstone Arsenal, Alabama. This project office will manage the program and acquire the system for all using services.

The family of UAVs includes three additional systems. The medium range UAV is assigned to the Naval Air Systems Command and is in full scale development. The close range UAV is assigned to the AUAV Project Office and is undergoing concept exploration and definition. The endurance UAV is currently being managed by the UAV JPO and is planned to enter the demonstration/validation phase in fiscal year 1992.

Senator SHELBY. What is the current status of the Army's participation in the program?

Mr. CONVER. The Army Unmanned Aerial Vehicle Project Office at Redstone Arsenal, Alabama, has been assigned program responsibility for the short range UAV program, and the close range UAV program. This project office will manage both programs and acquire the systems for all using services. The Army will be a major user of both UAV systems.

Senator SHELBY. What will the budgets look like for the future?

Mr. CONVER. The funding for all Unmanned Aerial Vehicle programs is consolidated under a single OSD program line which is administered by the UAV Joint Project Office. The funding in the program line (Program Element 0305141D) is:

RDT&E funding for fiscal year 1990, $82.3 million; fiscal year 1991, $82.1 million.

Procurement funding for fiscal year 1990, $28.9 million; fiscal year 1991, $24.3 million.

Each service has developed O&M outyear resourcing lines to support systems being procured by the JPO. The services and the JPO are actively planning future funding as part of the fiscal year 1992-1997 POM/budget process.

Senator SHELBY. Has a decision been made as to where the Army's test bed will be located?

Mr. CONVER. Unmanned Aerial Vehicle test bed activities will be accomplished by the Joint Technology Center at the U.S. Army Missile Command, Redstone Arsenal, Alabama. This facility is currently oriented toward joint service support to the short range UAV program but will eventually provide similar support to the close range UAV program as well. The Joint Technology Center is tasked by the Joint Project Office to coordinate technology development; optimize research, development, test, and evaluation facility utilization; and enhance the transition of advanced technologies.

QUESTIONS SUBMITTED BY SENATOR PETE WILSON

AAWS-M

Senator WILSON. General Pihl, would you comment on our progress on the AAWS-M? Are we on schedule, within planned cost boundaries? What is your assessment of the system?

General PIHL. The AAWS-M is the centerpiece of our force modernization. It is really a part of a revolution. When you consider the AAWS-M [deleted] a true fire and forget top attack weapon system from a missile system that weighs 45 pounds,

it represents a revolutionary change to the dimension of the battlefield when an infantryman can carry a stowed tank killer on his back. The AAWS-M is on track, sir. We are in full scale engineering development. There has been some cost growth on the contractor's part based on some software upgrades that they had to do. However, they are still below the funds programmed by the Government for the full scale engineering development effort. So this is a growth the program manager is able to accommodate within the budget request as we know it. There is no cost growth to the program beyond that which we have projected. We intend to build 58,000 of these missiles that will cost about $41,000 with a true top attack capability.

Senator WILSON. Is there any requirement at all, in your opinion, for a supplemental, interim system such as the Bofors Bill or Milan II?

General PIHL. No, we do not need either system in the U.S. Army.

Senator WILSON. What do these systems cost compared to the product-improved Dragon?

General PIHL. Bofors Bill estimated costs are $200 million to equip two divisions and Milan II estimated costs are $180 million to equip two divisions, vice $23 million to equip all forward deployed divisions plus the contingency forces with Dragon II.

Senator WILSON. Would you consider them cost-effective?

General PIHL. The Dragon II is an acceptable interim system. Neither the Bofors Bill nor the Milan II are cost-effective. Any advantage Milan or Bofors Bill have over Dragon II in range or probability of hit are more than offset by the significant logistic and force structure impact their fielding would entail.

Senator WILSON. Do these proposed interim systems meet Army requirements? What requirements are not met by these systems?

Mr. CONVER. No, Bofors Bill and Milan are 2,000 meter range missiles which possess only marginal capabilities against the currently fielded tank and virtually no capability against reactive armor. Bofors Bill system with 2 missiles weighs 162 pounds. Milan system with two missiles weighs 140 pounds. Both systems have separate day sights and night sights and tripods/firing post. Both of these systems are intolerably awkward to carry and require 3-4 man crews.

Senator WILSON. What are their other disadvantages?

Mr. CONVER. The Army already has an interim system—Dragon II. We have already spent $24 million to retrofit over 16,000 Dragon missiles with a new warhead which improves the system penetration capability against armor by 85 percent. With 16,000 retrofit missiles, we will be able to field Dragon II to all forward deployed units as well as the contingency forces. On the other hand, it would cost over $200 million to deploy just two divisions of Milan or Bofors Bill. When you consider the reduction in the world threat, it is hard to justify scrapping this $24 million we have already spent and then spending over $200 million to buy a system that is not only ineffective against the future threat, it is also ineffective against the current threat with reactive armor. Given the time it would take to procure and deploy an interim system such as Bofors Bill, it would only have a utility of 15 months before the Advance Antiarmor Weapon System Medium (AAWS-M) would be issued to the first unit.

Senator WILSON. The Army has been directed to conduct side-by-side tests with the Dragon II and the Bofors Bill and Milan II. Do you consider these tests necessary? Why?

General PIHL. No, we do not consider these tests necessary. The Army has already performed adequate testing of all three of these systems and has determined the Dragon II to be an acceptable interim system pending the AAWS-M fielding. Deficiencies of the Bofors Bill and Milan II are in the areas of system procurement, fielding and support costs, weight (and resulting necessary force structure changes to compensate for the increased system weight), lethality, and reliability. However, it is the Army's intention to comply with the law and perform the referenced testing.

Senator WILSON. How much will the tests cost?

General PIHL. The tests will cost approximately $10 million and will require 15 months to complete.

Senator WILSON. If the Army conducted these side-by-side tests and was then required to procure one of these foreign-made interim systems, how long would it take to procure them and how long would these systems be in the force before the AAWS-M was fielded?

General PIHL. Considering the time required to test, type, classify, and procure non-developmental items such as Milan and Bofors Bill, neither system would provide more than 18 months of utility before the AAWS-M is fielded.

APACHE FORCE STRUCTURE

Senator WILSON. Of the 40 AH-64 helicopter battalions in the Army, 26 are in the Active component, 12 in the National Guard, and 2 in the Reserves. Secretary Stone recently indicated that while maintaining the number of Apaches assigned to each Active battalion at 18, the Reserve component battalions will be equipped with 15 until force structure reductions are implemented. What does this imply as to the plan for Active AH-64 units?

Mr. CONVER. The funded AH-64 procurement buys 897 aircraft providing sufficient Apaches to resource an attack helicopter warfighting force of 40 battalions. Of these, 26 are in the Active component, 12 in the National Guard, and two in the U.S. Army Reserves. This provides AH-64s for all heavy divisions and all corps. Each of these units is authorized 18 Apaches. The plan is to equip the RC AH-64 units with 15 aircraft each initially, while providing 18 to each AC unit. Fielding RC units with 15 Apaches is the result of terminating the Apache program at 807 aircraft. This prudent economic strategy will provide sufficient aircraft up front for training and float accounts. When force structure reductions are implemented, AH-64s will be redistributed in accordance with DA priorities to AC and RC units. The procurement of 807 AH-64s will meet current total force structure requirements.

MEDIUM TRUCKS

Senator WILSON. The Army appears to continue to have a deficiency in its medium truck fleet. The currently operating production plant for 5-ton trucks in Marysville, Ohio, has experienced continual quality control problems. While Congress has expressed interest in a Service Life Extension Program (SLEP) for medium trucks for both Active and Reserve components, the Army seems reluctant to initiate such a program. While the Family of Medium Tactical Vehicles (FMTV) may produce a very good truck, it appears that the numbers we plan to buy will not be sufficient to meet the requirement. Would you give us a status report on all three of these components of the medium truck program and tell us how the Army plans to alleviate the continuing deficiencies of the medium truck for both Active and Reserve components?

General PIHL. The current 5-ton truck production in Marysville, Ohio is proceeding very well. Current production is stable at 40 vehicles per day. Product quality is high. All indications are that the "growing pains" experienced during the initial production startup are over. The Army is reassessing the timing and scope of the requirement for a SLEP in light of current force structure reduction alternatives currently under evaluation. The revision of the Tactical Vehicle Modernization Plan later this summer will reflect potential force structure reductions in a declining resource environment and will provide an assessment of the potential impact on the SLEP requirement. Regarding the FMTV program, the testing program is on track and is proceeding on schedule. Interim test results indicate exceptional vehicle performance. Contract award for the first 5-year multi-year production contract is planned for April 1991. Some of the deficiencies of the medium fleet will be alleviated through the continuing elimination and retirement of overaged and hard to maintain vehicles from the fleet. In this regard, potential reductions in force structure will assist in the upgrade of the medium fleet in that additional overaged vehicles may be eliminated from the inventory earlier than anticipated. Current M939A2 series fieldings will continue through 1991. The SLEP will provide an upgrade of older vehicles which are still required in the fleet and will be implemented when affordable. Future FMTV production will continue to modernize the fleet.

ARMORED GUN SYSTEM

Senator WILSON. The Army was forced to rely on the 25-year-old Sheridan in the recent liberation of Panama. I understand that the Army is now considering a replacement for that system. Would you please describe the requirements for this system, your plan for development and procurement, and how you might be able to join with the Marine Corps' 105 LAV program to achieve at least some commonality?

General PIHL. As the replacement for the currently fielded M551A1 Sheridan in the XVIII Airborne Corps, the Armored Gun System (AGS) will be used primarily in contingency force operations. Because of this, the AGS must be designed for low velocity air drop (LVAD). This requirement will limit the vehicle's weight to approximately 35,750 pounds, which will allow for sufficient fuel and ammunition in order that the vehicle be combat capable immediately after de-rigging. Additionally, the LVAD requirement limits the vehicle dimensions to 92.5 inches in height and 107

inches in width. In order for the AGS to drive-on/drive-off from a C-130, the width at the ground is further limited to 100 inches. The system will mount a gun compatible with NATO standards and 105mm AEI munitions. It will mount the M240 7.62mm coaxial machine gun and be able to accept a .50 caliber machine gun at the commander's station. The AGS will have at least the same protection levels as the current M55A1 Sheridan. The initial procurement of 70 systems is a near term solution to replace the aging fleet of M551A1 Sheridan Armored Reconnaissance Airborne Assault Vehicle in the XVIII Airborne Corps. The Army would prefer to buy this quantity for its near term requirements as a non-developmental item (NDI) or as part of someone else's larger procurement. The Marine Corps LAV-105 remains an NDI candidate for the Army's AGS. The Army has reviewed the Marine Corps stated requirement for a new light armored assault vehicle and determined that the roles and missions as well as the minimum acceptable deployability criteria were not acceptable to meet the Army's requirement for an Armored Gun System. The Army would certainly want the same system the Marines are procuring if it met the AGS required operation capability (ROC) and performed the unique XVIII Airborne Corps missions.

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

AH-64

Senator THURMOND. Despite the AH-64's adverse publicity in the press, leaders of the South Carolina National Guard tell me that they have not experienced many of the problems identified in the articles. They believe, however, that the Army's maintenance structure is not sufficient to support this sophisticated aircraft. Could you tell us if you have compared the AH-64 problems of the National Guard with those of the Active Army fleet, and, if you have, is there a difference?

Mr. CONVER. The Army takes a collective view of Apache readiness and maintenance and considers the maintenance experience of both Active and Reserve battalions. No one battalion, Active or Reserve, is experiencing all the problems spelled out in press articles concerning the Apache. Many of the problems highlighted are more than 2 years old, have been fixed, and no longer occur in the Apaches we field today. Overall, Apache readiness continues to improve as lessons learned are applied across the fleet and incorporated into training and fielding plans.

Senator THURMOND. What is your response to the charge of an inadequate maintenance support structure?

Mr. CONVER. During the development of the Apache table of organization and equipment (TO&E), the Army constrained the number of personnel in the Apache unit to about the same number in the older AH-1 Cobra unit. The Army believed that this would provide an adequate number of maintenance personnel given improved test equipment and component reliability over the Cobra. However, we have not realized all the improvements expected, and input from our major unit commanders indicates a need to increase the number of maintenance and other support personnel in the Apache battalions. While the Army recognized the need to increase the number of maintenance personnel in Apache units, we had to resource this increase through trade-offs of personnel from other units if we were to remain within the desired Army end-strength. The major unit commanders are currently examining the trade-offs and have submitted their recommendations.

The Army has ongoing actions to increase battalion strength with 35 personnel which have been deemed necessary to increase support in the Apache units.

NIGHT VISION GOGGLES

Senator THURMOND. Recently the "60 Minutes" program carried a story on the Army's night vision goggles. The story implied that the Army is using equipment that places our soldiers at risk. Would you clarify the record and give us your evaluation of the Army's night vision goggles?

General PIHL. The "60 Minutes" news segment which dealt with the use of night vision goggles did not adequately present the facts that aviation night vision goggles enhance readiness and safety.

Night vision goggles allow soldiers to use the night to their advantage. The Army has proven time and again that night vision goggles give air crews a significant advantage over the enemy. The proliferation of lethal air defense systems demands that the Army air crews fly at tree top levels and below to survive. This would be impossible without aviation night vision goggles.

Aviation night vision goggles proved invaluable in the recently conducted operation Just Cause. Our aviators were able to fight and survive at night by being able to see the battlefield while the enemy could not.

The "60 Minutes" segment implied that the Army is placing soldiers at risk by using inadequate night vision equipment. This is wrong. Safety is one of our primary concerns and we would not put our soldiers at risk by using inadequate equipment. Aviation night vision goggles are safe.

In June 1989, the Director of Operational Test and Evaluation reviewed testing performed on night vision goggles and noted that when used within their limitations, night vision goggles are safe for training and operations at night.

We feel it is also worthy to note that the Army has just emerged from the safest 4 years in Army aviation history.

SOLDIER INTEGRATED PROTECTIVE ENSEMBLE (SIPE) PROGRAM

Senator THURMOND. Recently I was made aware that the Natick Laboratory is sponsoring the SIPE program. The program focuses on the concept of the individual soldier as a system. I understand it involves work in the areas of improved ballistic, nuclear biological chemical, and laser eye protection; improved lethality of individual weapons; and reduction in the weight and bulk of mission equipment. Could you tell us what progress the program is making?

General PIHL. The SIPE ATTD program commenced in fiscal year 1990 and is the first programmatic effort using the soldier system philosophy. The SIPE is an integrated head-to-toe individual fighting system for the ground soldier which will demonstrate improved soldier performance and survivability. The SIPE subsystems are: integrated headgear (ballistic, respiratory, laser eye protection, communications/aural protection, weapons interface); advanced clothing (uniform/body armor, handwear, footwear, load-bearing); and microclimate conditioning/power (engine/generator, blower, filter). Currently, competitive contract proposals are under evaluation for the down-selection of competing technologies and the development/integration and fabrication of the prototype hardware to be demonstrated in the third quarter of fiscal year 1992 field demonstration at Fort Benning, Georgia. Follow-on ATTDs will address the unique operational and protection requirements of ground and air vehicle crews, Crew SIPE (fiscal years 1993–1995) and Aircrew SIPE (fiscal years 1996–1997).

QUESTIONS SUBMITTED BY SENATOR COHEN

MK–19 PROGRAM

Senator COHEN. The Army previously notified this committee that it had a requirement for 30,000 MK–19 MOD 3 grenade machine guns and further requested support of the current 5-year multi-year procurement of over 7,000 MK–19s. The Army is now canceling the last 2 years (4,151 guns) of this program and is doing so when it will only have 14 percent of its requirements filled effective with the fiscal year 1990 program. Aside from the adverse economic impact resulting from payment of contract termination costs and the loss of favorable prices under the multi-year contract, what is the justification for cutting the MK–19 program while funding numerous other programs that are at significantly higher levels of fill? This will be the case even after allowances are made for projected force reductions.

Mr. CONVER. The decision for cutting the MK–19 procurement was simply a matter of not having sufficient total obligation authority to support all the Army priorities. Other higher priority systems were funded and sufficient quantities of the MK–19 were procured to field all light and contingency units in force packages 1 and 2.

Senator COHEN. Former Under Secretary of the Army Ambrose once made a strong case to this committee that is was essential to maintain the small arms base in an active status during peacetime. Unlike other items, trucks for example, if the machine gun base disappears, our ability to respond to emergency or mobilization requirements disappears as well. In view of this situation, why is the Army allowing the only program that sustains the mobilization base for the MK–19, M2.50 Cal, and M60 series machine guns to go unfunded? This is not a weapons system oriented solely for Europe.

Mr. CONVER. The Squad Automatic Weapon (SAW) is displacing the M60 MG in the ground mounted role and the M2.50 Cal MG is becoming excess as BFVs are fielded. The MK–19 inventories are sufficient to meet the Army's decision to field only the light and contingency forces in force package 1 and 2. The risk of not pro-

curing additional weapons to maintain a mobilization base is accepted while RDT&E funds are programmed for the development of the advanced crew served weapon.

Senator COHEN. Saco Defense has been seeking foreign sales of the MK-19 to complement U.S. requirements in order to assist in sustaining a warm base through the 1990s. This effort has been curbed by the Defense Department's assessment that the MK-19 is a state-of-the-art weapon of significant capability in terms of lethality and versatility. Consequently, the Department of Defense has precluded Saco from selling test quantities of the MK-19 to any country; neither will the U.S. Government sell test quantities under government-to-government agreements. This is strong testimony regarding the effectiveness of the MK-19. This is further confirmed by the Marine Corps decision to purchase additional MK-19s in fiscal year 1991 to increase their level of fill above 80 percent. Moreover, several countries are embarking on production of 40mm grenade machine guns because of high worldwide demand. How can the Army justify limiting the availability of this weapon to the U.S. Army soldier given its capabilities and broad based use in both forward and rear areas and all areas of potential conflict?

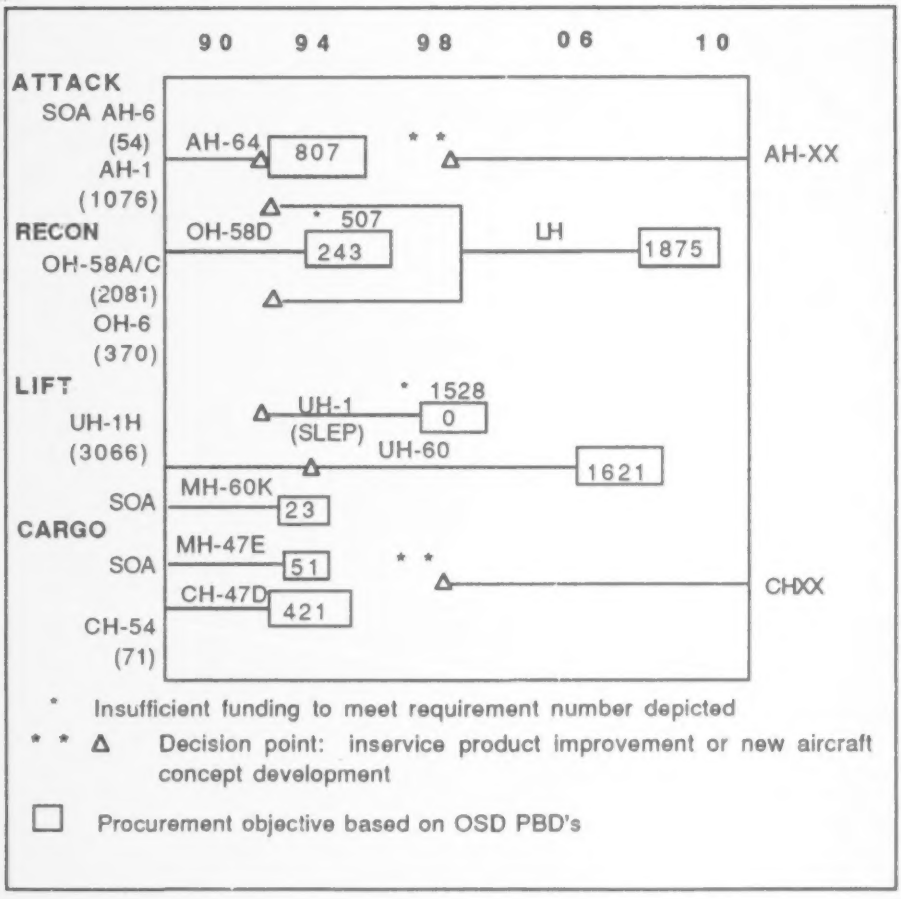
Mr. CONVER. The issue was not one of limiting the weapon to U.S. Army soldiers, but one of which weapons to provide him with. Based on the given TOA, the MK-19 competed against all systems and the decision was to field the contingency and light forces in force package 1 and 2. The cost savings were not only in the weapons themselves but also in the procurement of ammunition. This decision was feasible because of the funding for the development of the advanced crew served weapon.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

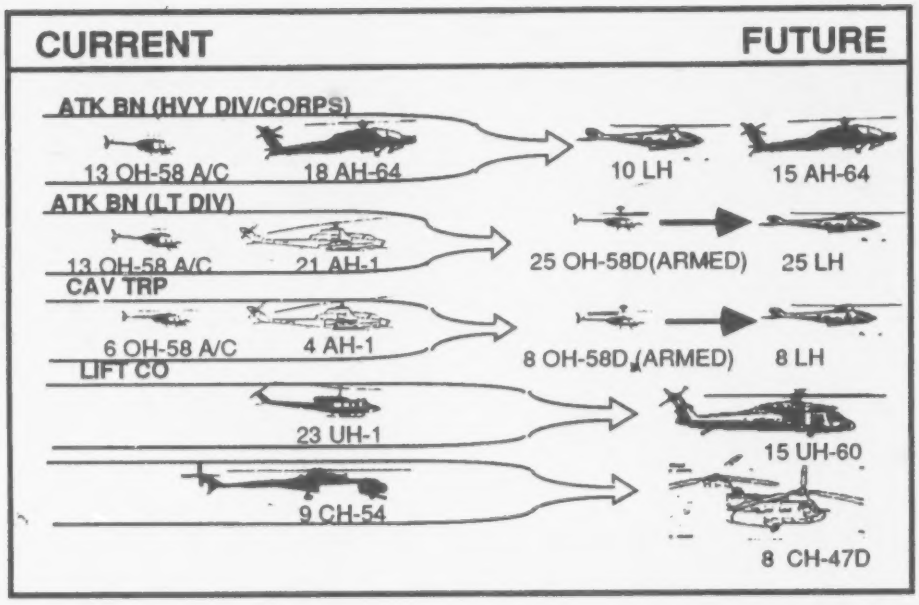
HELICOPTER FORCE STRUCTURE

Senator MCCAIN. I am interested in getting a broad overview of where Army aviation is headed in the next decade and beyond. The context for this question is that the Army has certain on-going helicopter production programs today, such as the OH-58D Scout modifications, AH-64 Apache attack helicopter new production, CH-60 troop lift helicopter new production, and CH-47D troop lift modification program. The Army also has the LH in research and development. Considering that there are known quantities of aircraft planned for each of these programs, and considering that there is an existing inventory of those helicopters except for the LH, plus older models to be replaced, can you give me a snapshot of what the Army will have when the LH program is completed in about 15 years? One focus of this question is to see if you will still have any old helicopters, such as Hueys and Cobras, in your force after the LH is delivered. Would you supply the specific answer to this question in the record in chart and/or tabular form, to explain the changes in helicopter force structure.

Mr. CONVER. This chart depicts the Army's modernization strategy for major aviation mission areas.



This chart depicts Army aviation future force design as reflected in the modernization plan.



As reflected in the numbers below, a number of older aircraft will remain in the force due to recent budget actions. There will be requirements for UH-1s to perform utility missions for which the UH-60 was not resourced. The Army is currently examining alternatives to the UH-1 utility issue. Current alternatives range from a service life extension program (SLEP) in the late 1990s to the procurement of an NDI utility helicopter. In addition, although the OH-58 and the AH-1 in combat units are replaced by the LH, liaison and light utility missions will still be performed by OH-58s. Remaining numbers by type: AH-1: 0; UH-1: 1,528; and OH-58: 490.

LONGBOW ANTI-TANK MISSILE SYSTEM

Senator McCain. I have heard some allegations or rumors that the Longbow anti-tank missile system that is planned for incorporation on the Apache attack helicopter later in this decade is being proposed in some quarters to be put on ground-based vehicles. Is that feasible, and what does the Army see as the advantages and disadvantages for such a utilization of Longbow?

Mr. Conver. The Longbow system is planned for incorporation on the Apache attack helicopter and the LH. The Longbow provides an adverse weather system, a fire-and-forget missile system, greater lethality, and survivability. There are no plans to apply the Longbow in its Apache configuration to ground-based vehicles; however, we are looking at applications of Longbow's millimeter wave technology and processing to the Block III tank target acquisition system. Much work remains to be done before we settle on specific applications.

LONGBOW/LIGHT HELICOPTER (LH)

Senator McCain. The Longbow system is also rumored as a possible system to be added to the LH. Would such a plan be feasible?

Mr. Conver. Yes, the Longbow system is ideally suited for the LH. The Army plans to install Longbow on approximately a third of the LH fleet; 700 Longbows if 2,906 LHs are procured, or 625 Longbows if 1,875 LHs are procured.

Senator McCain. How much will the Longbow system weigh, and what would that system do to the LH's flight characteristics, such as speed, maneuverability, agility, and radar signature?

Mr. Conver. The Longbow LH version will add approximately 200 lbs. to the overall empty weight of the aircraft. The extra weight and drag is estimated to reduce the LH dash speed by approximately 15 knots, if not downsized for LH application. If downsized, the resultant dash speed reduction would be less. However, it must be emphasized that with the Longbow integration, the LH will continue to retain agili-

ty/maneuverability, speed characteristics, and low observability superior to existing systems. The increase in adverse weather target acquisition capability for those selected Longbow LHs makes a significant contribution on the battlefield. Emerging cost and operational effectiveness results indicate that the slight degradation in air speed performance does not adversely affect combat effectiveness; in fact, the usefulness of Longbow far outweighs the slight performance degradation.

TOW II MISSILE

Senator MCCAIN. As I understand the TOW II missile situation, it appears that the quantities you originally planned to purchase when the Army decided to bring on a second source have decreased considerably; in view of this, does it make sense to continue with a second TOW missile production source?

General PIHL. No, it does not.

Senator MCCAIN. What would you suggest would be the most economical way to acquire the remaining TOW missiles?

General PIHL. If production quantities are below 12,000 missiles per year, sole source would be the best method.

[Whereupon, at 11:28 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1991

FRIDAY, APRIL 27, 1990

U.S. SENATE,
SUBCOMMITTEE ON CONVENTIONAL FORCES
AND ALLIANCE DEFENSE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE AIR FORCE'S FORCE STRUCTURE AND MODERNIZATION PLANS

The subcommittee met, pursuant to notice, at 9:49 a.m., in room SR-222, Russell Senate Office Building, Senator Carl Levin, (chairman of the subcommittee) presiding.

Committee members present: Senators Levin, Shelby, Thurmond, Wilson, and McCain.

Committee staff members present: Daniel G. Sakura, research assistant.

Professional staff members present: John J. Hamre and David S. Lyles.

Minority staff members present: George W. Lauffer and Durwood W. Ringo, Jr., professional staff members.

Staff assistants present: Lisa B. Hastey and Cindy Pearson.

Committee members' assistants present: Kenneth N. Luongo, assistant to Senator Levin; Milton D. Beach, assistant to Senator Glenn; Terence M. Lynch, assistant to Senator Shelby; James M. Bodner, assistant to Senator Cohen; Patrick F. McCartan, assistant to Senator Wilson; Anthony H. Cordesman and Marshall A. Salter, assistants to Senator McCain; Charles G. Pearcy, assistant to Senator Lott; and Eric H. Thoemmes, assistant to Senator Coats.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Senator LEVIN. Good morning, everybody. This morning the subcommittee will review the Air Force's plans for modernization in light of impending force structure plans. As I indicated Wednesday, when we received testimony from the Army, we will have to evaluate the Air Force's budget proposals in light of the substantial changes that have occurred during the past year.

I believe that the following questions are central to our review: (1) The Air Force of the future will be smaller than previously projected; how should we amend procurement and research and development programs in light of the smaller force structure? (2) The major Air Force modernization programs predate the changes of

the past 2 years; do we still need to proceed with those programs and under what schedule? (3) What role will the Reserve components have in that future? (4) How well equipped are they to do that? (5) As the Active Air Force shrinks, what is going to happen with the equipment that is released as squadrons are deactivated?

Our witnesses this morning are Maj. Gen. Richard E. Hawley, Director of Operations, Office of the Deputy Chief of Staff for Plans and Operations, who will focus on the likely composition of the tactical Air Force of the future; and Maj. Gen. John Jaquish, Director of Tactical Programs, Office of the Assistant Secretary of the Air Force for Acquisition. General Jaquish is the senior officer responsible for acquisition of tactical weapon systems for the Air Force and can indicate the implications of the changes in force structure for Air Force acquisition plans.

We are pleased to have both of our witnesses here today. Before we proceed to General Hawley, let me call upon Senator Wilson for any opening remarks.

Senator WILSON. Thank you, Mr. Chairman. I join you in welcoming General Jaquish and General Hawley to this very important hearing. The results of the Defense Department major aircraft review, which were communicated to us just yesterday, make this particular hearing even more timely.

General Jaquish, I empathize with the fact that you would probably rather be playing golf today, particularly since rumor of your handicap has reached us. I was thinking, considering that almost every major Air Force program has its roots in California, it is a pity that we can't be holding this hearing out there, so that you might be able to indulge your other favorite pastime on some of the world's best courses.

Senator LEVIN. Do I hear a motion? [Laughter.]

Senator WILSON. Be careful or you'll get a motion. [Laughter.]

Mr. Chairman, as I stated 2 days ago in our Army force modernization hearing, the dynamic changes that have occurred throughout the world, the ongoing arms control negotiations, and the budget pressures resulting from the collective effects of these extraordinary events have forced consideration of major restructuring of our Armed Forces. This task will be difficult enough if we place proper attention on modernization in the very face of reduced force structure. Proper treatment of modernization programs must, of necessity, consider R&D go-aheads, stretch-outs, even program cancellations.

We may also have to entertain proposals for deferrals of next generation programs in conjunction with remanufacturing and extended service of existing equipment in order to leapfrog into the future. I am not, as I mentioned a couple of days ago at that Army force structure hearing, very enthusiastic about the process suggested by the chairman of the House Armed Services Committee, whereby we develop technical data packages and then put them on the shelf until production needs actually mature and justify procurement. This is a process that I think risks the high perishability of technology and really does not determine whether or not the so-called data in the package will result in a workable or producible result until after the need arises, and that is too late.

Proper evaluation obviously is going to depend on individual consideration of each program, with attention being simultaneously placed on both the current and the projected threat. In this regard, I am particularly interested in the testimony this morning which attempts to take that long view and give us that insight as it relates to so-called Third World threats.

So, Mr. Chairman, I thank you for conducting the hearing and for the opportunity to work closely with you again this year, as in the past, as we go through this difficult, and I will even say unpleasant, responsibility of having to shrink what has been a very high quality Air Force. I think our goal is to see that as it grows smaller it maintains even greater quality, and that is going to be a challenge in the context of reduced spending, so reduced that we do, in some cases, have to make some very educated guesses and take some risks even on R&D.

But, with that, I will conclude with one final comment, which is my expression of ongoing appreciation to staff for the very good cooperation between staffs. Dr. Hamre has worked exceedingly well and very cooperatively with the minority staff.

Senator LEVIN. Thank you, and I do agree with you fully about how well our staffs work together. I would just add to that one last comment of yours. Not only do we have to do better with less, but when we have less, by nature, that is going to force some very inefficient production rates. So it is triply hard to do better with less. That came out yesterday.

Let me now call on General Hawley and ask you, General, if you can summarize your statement for us. Then we will get right down to our questions. We will put your full statement in the record.

STATEMENT OF MAJ. GEN. RICHARD E. HAWLEY, USAF, DIRECTOR OF OPERATIONS, OFFICE OF THE DEPUTY CHIEF OF STAFF FOR PLANS AND OPERATIONS; ACCOMPANIED BY MAJ. GEN. JOHN E. JAQUISH, USAF, DIRECTOR, TACTICAL PROGRAMS, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION

General HAWLEY. Mr. Chairman and Senator Wilson, General Jaquish and I welcome this opportunity to appear before the subcommittee as you address modernizing our tactical air forces.

As the subcommittee knows better than most, our modernization program for the tactical air forces was conceived in times very different from those we face today. The international landscape has changed, and with it the fiscal constraints within which we must shape the military instruments of national power. The American people expect a lessening of the defense burden they have shouldered so willingly for so many years, and the issue is no longer whether or not the defense budget will shrink, but, rather, by how much and how fast.

As we examine the threat to our national security interests, we see that many things have changed, but not everything has changed. The Warsaw Pact has lost credibility as a military alliance. But the Soviet Union, always the dominant force in that alliance, retains enormous military power, and it continues to modern-

ize its forces at a very impressive rate, especially its tactical air forces.

Moreover, while the threat to our allies in Europe has diminished, those in the Far East, Middle East, and elsewhere are not yet seeing a similar reduction in military tension. We are a global power with global interests, and a modern, tactical Air Force will remain central to an effective defense posture for the foreseeable future. Just as we are working to define the future shape and size of the Armed Forces, so we are working to define the pace of modernization in our tactical air forces.

Secretary Cheney answered many of the questions in his testimony yesterday, and he made it clear that, while the changing international environment and tighter fiscal constraints will slow our rate of modernization, the requirements that shape those programs remain valid. We need flexible tactical air forces, able to deploy rapidly and to exploit the advantages our technology offers us. With your continued support, that is exactly what we will continue to have.

Thank you for your time today, Mr. Chairman. General Jaquish and I are ready for your questions.

[The statement of General Hawley follows:]

STATEMENT OF: MAJOR GENERAL RICHARD E. HAWLEY
Director of Operations
Deputy Chief of Staff/Plans and Operations
Headquarters, USAF

SUBJECT: Force Structure and Air Force Modernization

MR CHAIRMAN AND MEMBERS OF THE COMMITTEE

I am extremely pleased to appear before this committee today to present my views on the modernization of our tactical air forces and related force structure issues. It is a challenging time to be involved in the process as we in the United States find ourselves increasingly a part of an international landscape--a landscape that, in the words of President Bush, "is marked by change that is breath-taking in its character, dimension, and pace."

In the forty-five years since the end of World War II, we in the United States have focused our national security efforts on the threat posed by the Soviet Union--the only nation with the capability to threaten our survival. But the breath-taking change in the international landscape is causing us to revisit our national security strategy as a result of the significantly different world we will face in the next century.

In this time of dramatic change in world conditions, threats, and budgets, it is useful to keep our focus on the most fundamental national security objective of the United States--the preservation of this nation as free and independent, with our fundamental values and institutions intact. We in the United States Air Force have played a key role in achieving that national objective for over forty years by carrying out the basic mission of the Air Force which remains to

organize, train, equip, provide, and support aerospace forces to deter aggression and, if necessary, defeat aggressors across the spectrum of conflict.

Our national military strategy, which is founded in deterrence of conflict, combines forward defense and flexible response to ensure that adversaries will always see that the potential costs of conflict far outweigh any possible gain. This national military strategy, which stresses flexibility in planning and execution, is designed to achieve our national goals while guiding the development of **cost-effective, capable,** and **flexible** military forces--three characteristics of our forces that are increasingly important as we approach the 21st Century. These three characteristics are inherent to aerospace forces and provide the capability to project U.S. power and influence around the world ... to reach any global hot spot swiftly to deter, provide a tailored response, or hit hard with precision.

A combination of dynamic and rapidly changing factors are creating an increasingly complex and significantly different world environment and are making aerospace power projection even more important. Historic political and social changes are sweeping the world, including changes in the fabric of Eastern Europe and the Soviet Union that would have been called far-fetched if predicted a year ago. We welcome their steps toward more democratic or pluralistic political systems and free market-oriented economies as well as the other changes in the Soviets' actions as they turn toward addressing their internal problems.

The Soviets say they are shifting to a defensive military

strategy of "reasonable sufficiency" and we have made welcome progress in talks designed to reduce both strategic and conventional arms. And, if the political reforms that are changing the face of the Warsaw Pact remain in place, the likelihood of a major war in Europe may decrease. While some initial reductions or withdrawals in Warsaw Pact forces have been announced, they have not all taken place. And even those can not quickly erase the results of twenty years of unrelenting growth in Soviet capabilities. Too many issues remain unsettled. And while we welcome Soviet policy declarations that signal changes in their intentions, we must continue to respect and be prepared to counter capabilities. Those capabilities have not been fundamentally altered, and remain very robust in the Soviet air forces.

The Soviet air forces continue to introduce a variety of more capable aircraft such as the MiG-29 FULCRUM, the MiG-31 FOXHOUND, and the Su-27 FLANKER B and are exporting some of these systems to clients around the world. They possess state-of-the-art avionics and armament systems, similar to our F-15s and F-16s, with a true look-down/shoot-down capability that lets Soviet aircraft detect and attack low-flying aircraft. These improved systems also employ improved munitions and are supported by sophisticated electronic combat and command and control systems. The Soviets have also deployed a formidable force of modern, tactical, surface-to-air missile systems and antiaircraft artillery, supported by a linked array of mobile and fixed radars. The SA-12, a new surface-to-air missile system currently being deployed, poses a major threat to our forces. It is mobile and provides a quantitative and qualitative edge in what is already a formidable defense system. And it will be followed by additional new systems designed to

maintain Soviet capabilities.

The Soviet Union remains the only nation with the military capability to threaten our national survival. While we look with hope to the future and respond positively to new developments, we cannot be blind to existing threats. We also face growing challenges to our national security in other parts of the world, regions which are less stable and harder to predict.

In pursuing our security objectives in the developing world--promoting freedom and democracy; improving stability; reducing the flow of drugs into our nation--we face growing challenges. The potential for conflict in the Middle East, flux in South and Central America, and the prospect of highly dangerous and destructive regional wars must be faced and are made more daunting by the increasing spread of sophisticated arms. As weapons production becomes global, increasingly lethal weapons are available to smaller powers and regional states. Third World battlefields will be in many ways as demanding as those we could expect in Central Europe.

Many developing nations around the world are focusing on military ways to assert themselves; examples are all too evident: Syria fields more main battle tanks than any European member of NATO other than the Federal Republic of Germany; Iraq maintains a larger standing force than any European NATO state; the North Koreans possess more artillery pieces and multiple rocket launchers than any NATO country including the United States; India has Mirage 2000s and MiG 29s; and the Cubans are also flying MiG 29s. The continued spread of sophisticated technologies--nuclear and chemical weapons, ballistic missiles, advanced tactical aircraft, modern tanks,

cruise missiles--raises the intensity of conflicts in the Third World.

Therefore, the forces we maintain and develop must also be increasingly capable and flexible. The competitive edge we enjoy in technologies relevant to modern battle must be translated into an advantage in the field, and then supported by appropriate tactical doctrine and operational art. The fast, flexible, power projection capabilities provided by air power will be increasingly vital in our efforts to thrive in an uncertain, and dangerous, world.

In structuring our fighter forces to support the national military strategy, we start by recognizing that the very strength of present policies has been key to the heartening changes we see in the Soviet Union and Eastern Europe. The changes we see in Eastern Europe are a reflection of the increasing pace of change around the globe. But the direction of that change is not easily predicted, so force planning must place increasing emphasis on our inherent power projection capabilities. We must shift even more toward flexible forces capable of rapid response and precision delivery of tailored force anywhere in the world. Our focus in modernizing our airpower forces will be on emphasizing the inherent characteristics of airpower--speed, range, flexibility, precision, and lethality--which best support the maintenance of our national security in an uncertain world.

The United States is an aerospace nation. Our aerospace industries are our largest net source of trade exports. Aerospace power will become increasingly important in the future. Today's Air Force is more capable than at any other time in our

history, but five years of defense budget reductions will constrain our capability. The acquisition programs we have in place for Fiscal Year 1991 and those for the future are designed to ensure that we meet the challenges in the tactical arena despite a diminishing defense budget.

Planning our fighter force structure is a complex task. The threat, U.S. national security strategy, and the missions airpower must perform in support of that strategy are some of the factors that must be considered in evaluating our fighter force structure. Complementary forces add further complexity--should we rely on ground or naval forces to provide some capability, or should airpower increase its emphasis on a particular task? Aerial refueling, surveillance, munitions, etc., are all part of this complex equation. Industrial concerns also play a role. We consider economic production rates, the defense industrial base, maintaining the U.S. technology edge through research and development, and so on. Active/reserve mix issues must also be considered as well.

We are moving toward an increasing reliance on reserve forces, but it is important to realize that there are limits. For example, the active force is the primary source of personnel for the reserve component--too drastic a reduction in active forces will eventually starve the reserve forces. In addition, the economy of reserve activities results in large part from active duty infrastructure that supports operations of the reserve component. Thus we must draw up our plans with this delicate balance in mind. In addition, active forces can respond more quickly than reserve forces--thus, the effects of greater reliance on reserves on our response times must be factored in. On top of all this is the issue of funding--how

much can we afford to spend on our fighter forces compared with other air force, army, and navy assets?

In sum, these factors must all be considered when planning our fighter force structure. It is a complex and challenging business, and the application of quantitative techniques can help. They can help to frame the issue and provide guidance but they are no substitute for common sense and military judgment.

To meet the challenges of the future, we will require the continued support of Congress to maintain highly capable, modern, and ready fighter forces. Our forces must be capable of fighting and winning against technologically improving threats around the world. In order to accomplish this within projected fiscal constraints, we will begin reducing our fighter force structure in Fiscal Year 1991. We will assume the increased military risk inherent in a smaller force in order to keep that force ready and modernized. We will partially offset the reductions in force structure by modifying current aircraft to increase their capability, maintainability, and service life. We are also developing future weapon systems with a focus on leaner procurement, operating, and support costs to provide an effective and affordable future fighter force. We are also working to achieve the right balance of active and reserve forces and equipping the reserve forces, which now constitute about 30 percent of our total fighter force, with modernized equipment such as the F-15 and F-16. These aircraft, the mainstays of the active and reserve forces, have been so successful over the nearly two decades since their introduction because they were a generation ahead of current fighters when they were introduced. The Advanced Tactical Fighter, or ATF,

represents the same kind of generational leap.

The role of the ATF is control of the air. From the smallest brush-fire war to large-scale operations, control of the air--the ability to exploit enemy airspace to perform combat missions while denying the enemy the use of friendly airspace--is the first concern of any joint force commander. Control of the air or air superiority is an absolute necessity. Since the German attack on Poland in 1939, no country has won a war in the face of enemy air superiority, and no defense has sustained itself against an enemy who has had air superiority. Conversely, no state has lost a war while it maintained air superiority, and attainment of control of the air consistently has been a prelude to military victory. Those who plan the makeup of our Nation's forces are aware of the historical facts and plan accordingly. The ATF and and the Advanced Medium-Range Air-to-Air Missile, or AMRAAM, are the keys to maintaining our technological lead and achieving air superiority and are our two highest tactical priorities in Fiscal Year 1991.

The ATF, a follow-on to the F-15, will be an air-to-air fighter incorporating low-observable technology, supersonic cruise and maneuver, and advanced avionics essential for gaining and maintaining control of the air into the 21st Century. The ATF's combination of advanced capabilities will permit us to fight and survive wherever required, achieve first-look, first-kill success against multiple opponents, day or night, fair weather or foul.

The AMRAAM is our number one tactical weapon priority and provides a major advance over current radar missile capabili-

ties. It has improved resistance to electronic countermeasures and will give us a launch-and-maneuver, multiple-kills-per-engagement capability necessary to fight tomorrow's air war.

We are also modernizing our ground attack forces. We'll complete the F-15E buy in Fiscal Year 1991, an important step toward filling our urgently required, all-weather deep penetration capability. We also support the Navy A-12 development program and have funds programmed for the development and production of an Air Force variant, the Advanced Tactical Aircraft, or ATA. The ATA will satisfy our need for a greatly improved surface attack aircraft to counter projected threats in the year 2000 and beyond.

The Air Force places a very high priority on close air support (CAS) and battlefield air interdiction (BAI). The A-7D and A-10A are unable to meet the Joint Force Commanders' requirements in the mid-1990s and beyond and we have funded programs to modify A-10s and F-16s to enhance our capabilities. These solutions will be supplemented in the future by follow-on aircraft with the capability and flexibility to conduct CAS and BAI in any anticipated threat environment.

The key to achieving our goals for tactical air force modernization and force structure is to develop a procurement strategy that meets threats around the world, which are growing in capability, and provides three factors: (1) the required numbers of fighters to sustain the force, (2) the needed mix of fighters and weapons to accomplish the missions, and (3) quality-improvements for our forces.

Ready, flexible, and capable tactical air forces can be

tailored to provide a quick and appropriate response to support U.S. policy. Our forward-based forces and those based in the United States provide presence and visible capability. With emphasis on lean and deployable forces, our fighters can go anywhere, quickly, with very little baggage and with unprecedented lethality. And they are capable of projecting power within hours, not days.

On June 25, 1950, the North Koreans launched their surprise invasion of the South. The very next day, the Air Force flew sorties in the conflict. That flexibility remains intact 40 years later. Within 48 hours of the execution order for Just Cause, Air Force aircraft put ordnance on targets and flew air defense sorties.

With the future's premium on projection of power and influence, the Air Force and this Nation will need a modern, ready, capable fighter force. Though we're the youngest service, we've had plenty of experience in power projection. Since 1980, the U.S. Air Force has been called upon to act in the nation's behalf over 150 times. When needed again, we stand ready to project America's power and influence around the world. And with your help, we'll maintain the United States Air Force's position on the leading edge of fighter capability.

With these thoughts in mind, I am ready to answer any questions you may have.

Senator LEVIN. Thank you, General Hawley.

FORCE STRUCTURE

Secretary Cheney testified yesterday that the Air Force was likely to cut out more than five tactical fighter wings. Based on those comments, can we assume that the Air Force will have 30 or fewer tactical fighter wings by 1996?

General HAWLEY. As you know, sir, the final force structure has not yet been determined as we work through the POM. But, as

both Secretary Cheney and General Welch have indicated, if the fiscal constraints continue to tighten, it will be very difficult to avoid further force structure reductions. I don't think I can say today whether we will get below 30; but we are going to get smaller.

Senator LEVIN. Do you think 30 or fewer is a fair assumption for us to work on by 1996?

General HAWLEY. I would not be surprised to see numbers in that range.

Senator LEVIN. What are your priorities in terms of the aircraft that you want to keep and the aircraft that you are willing to retire—just a priority list?

General HAWLEY. As you know, we shape the tactical Air Force based on mission requirements. Air superiority remains the number one task that has to be accomplished in any conflict. Without it, the rest of the arms simply cannot operate effectively. So we must retain a very vigorous and capable air superiority component of the tactical Air Force. Historically, that has represented about 25 percent of our force structure. So, the air superiority force must remain our number one fighter priority.

As we modernize the rest of the force, we will become increasingly an F-16 force in the rest of the tactical Air Force. The F-4 is aging and reaching the end of its lifespan. So we will expect to see the F-4s retire from the force over the course of the next several years. I think you will find that, with the F-15 in all its versions, the F-16, and then the modern aircraft which we are now developing, the ATF and eventually the ATA, that will shape the tactical Air Force of the future.

ACTIVE/RESERVE SPLIT

Senator LEVIN. Let me ask you a preliminary question. Does the Air Force have a two-thirds/one-third guideline for allocating resources between the Active Air Force and the Air National Guard and the Air Force Reserve? Is there an informal, or a formal, guideline of that nature?

General HAWLEY. I don't think that's part of the guideline, sir. It kind of represents where we are. We have about a third of the tactical air forces in the Reserve components. There are a lot of reasons for that. And, as we shape the force of the future, which we are currently working through, the Department of Defense, we have to consider lots of factors, not the least of which is the outcome of the ongoing negotiations for the reduction of force structure in Europe, or CFE, the overseas commitments that we maintain in other parts of the world, as well as the requirement for the Active force to support the Reserve components. The Reserve components are not inherently less costly than the Active force by a great deal, particularly in the tactical fighter business. So, much of their economies derive from the relationship that exists between the Active and the Reserve component.

Senator LEVIN. How much more economical are they? You say not by a great deal. What is your estimate of that?

General HAWLEY. Sir, I don't have a number for you. I think that would vary by type of unit, by tasking. A lot of factors go into that.

Senator LEVIN. Are you going to shift the wings that you deactivate to the Reserves, or are you going to be cutting the Reserves as well by the same proportion?

General HAWLEY. As we respond to reductions due to negotiations, particularly in Europe, I think you will see the initial reductions primarily from the Active component. As we determine the eventual size of the total force, there may be some reductions as well in the Reserve components.

Senator LEVIN. Do you expect them to be proportionate?

General HAWLEY. I would not expect them to be proportionate.

Senator LEVIN. Would you expect them to be close to proportionate?

General HAWLEY. I don't think I can determine that until our force structure shapes up through the POM process that is currently underway, as Secretary Cheney discussed yesterday.

Senator LEVIN. You don't have a guideline that those cuts should be proportionate in any way?

General HAWLEY. No, sir.

Senator LEVIN. And that is not the thinking of the Air Force?

General HAWLEY. I am aware of no guidance that says that we should approach this problem with proportional cuts between the two components. We need to do what makes sense and what will produce a total force that can accomplish the tasks that we expect to have to accomplish.

Senator LEVIN. What is the plan for redistributing modern weapons from Active squadrons to the Reserves as the force structure shrinks?

General HAWLEY. Sir, I would expect us to continue our past practice which is to keep the Reserve components modernized. We will retire those aircraft that are the oldest and least effective for the missions that the Reserve components have to accomplish. We will have, I think, 24 Reserve squadrons equipped with the F-16 by the end of this year. That modernization trend will continue as we reshape the Active force.

F-16

Senator LEVIN. General Jaquish, I would like to talk to you about F-16s for a moment. Are we now going to be buying more F-16s than we need because you are deactivating tactical air wings?

General JAQUISH. Sir, 1991 will be the second of a 4-year multiyear contract that we had forecast for the F-16 at 150 a year. At the time that decision was made to go into a 600 airplane multiyear buy, we had a different set of circumstances. So that is all under review at this point in time and, depending upon how this force structure thing works out, we will make adjustments to that multi-year contract if that makes sense.

Senator LEVIN. Are you planning on making it possible, or is it possible that you are going to propose an adjustment in your 1991 budget?

General JAQUISH. That is possible. But we have not worked that out at this point. I would point out that at this point in time, we are not on a definitized contract for that multi-year. We have a

long lead contract ongoing, and we are in the process of negotiating that definitized contract. It is going to take some time to do that.

Senator LEVIN. Will you make a decision on what our needs are due to the force structure changes prior to definitizing the 1991 contract?

General JAQUISH. I would expect so, yes, sir.

Senator LEVIN. When is that, timetable-wise?

General JAQUISH. Well, the force structure should be sorted out between now and the 1992 budget submission next January, and we are shooting for a definitized contract on that multi-year in May 1991.

Senator LEVIN. May 1991?

General JAQUISH. Yes, sir. So some 4 to 5 months after the 1992 budget is submitted, we will be on a definitized contract.

Senator LEVIN. Let me come back to that. My time is up. Senator Wilson.

ATF/F-15

Senator WILSON. Thank you, Mr. Chairman. General Jaquish, will the stretching of the ATF reduction that we were hearing from the Secretary about yesterday and the obvious slide in the IOC that will be caused by it force the Air Force to pursue an alternative, such as an upgraded F-15?

General JAQUISH. I don't believe so, sir. I think, as you know, as a part of any acquisition program, one of the first things that we do is we look at modifying existing airplanes or existing weapon systems to see if you can do that job. We have looked at the F-15 and, while the F-15 has provided us tremendous capability in terms of air superiority since the mid-1970s—in fact, there has been a generation of airplanes in there, two generations of Soviet airplanes in there—when we've looked at what you could do to the F-15, while you could increase its capabilities, it cannot meet the ATF mission requirements.

Senator WILSON. What do you anticipate will be the effect of the 2-year development delay announced by the Secretary yesterday on the ultimate fly-away costs of the ATF?

General JAQUISH. Well, certainly it will make it higher priced as we go out there, and that will all be dependent upon inflation factors and the ultimate number of buys. I think, as the Secretary pointed out, there is some potential that, as we go through this force structure and look at the number 750, it may be modified in some way.

Senator WILSON. Well, with that in mind, General, it seems to me important to bear in mind the investment that prime contractors have made toward the development of the concept. So I wonder if you would anticipate whether or not this 2-year program slide in any way is going to delay the DemVal for the team selection?

General JAQUISH. No, sir. Very clearly, I think the MAR group and the Department, when they looked at this, looked at the impact of not down-selecting, as programmed. I think you know that we are programmed to down-select on that contract in the neighborhood of May or June 1991. So, the principle going in and

the recommendation from both the contractor teams and the engine teams was, in fact, to do that. It was to down-select on time, get down to a single team, get into FSD and then proceed on that course. So that is the course that we are headed on.

Senator WILSON. I am delighted to hear that because even when you have to delay FSD, I think it is important that the contractors have the certainty from the DemVal.

THIRD WORLD THREATS

General Hawley, as I indicated in my opening statement, I was very much interested in your comments about emerging Third World scenarios. Given that, rather than a new Third World threat, what we perhaps are more accurately facing is a host of Third World nations presenting First World threats. Could you give us some examples of what the Air Force feels represents the type of technology that we are going to be held to prepare to encounter?

General HAWLEY. Yes, sir. That is an excellent point to make. The proliferation of high technology systems around the world changes the face of the threat that we face in some of those areas. If we are asked to engage in places like the Middle East, where there are literally hundreds of fourth generation Soviet systems, to include Fulcrums and Flankers, the threat is not going to be an easy one to counter and will require the application of all the high technology that we can bring to bear to the problem. Perhaps the most volatile threat we face today may be in Korea, where the North Korean armed forces, with better than 600 aircraft, remain in essentially the same posture they have been for many years, with a serious threat to the Republic of South Korea.

You can look at almost any country in the Middle East and find force structure which rivals that of any of our allies in Europe in many respects, to include armor, advanced aircraft, and air defense systems, which pose a tremendous challenge to the tactical air forces.

Senator WILSON. Speaking of those systems—and this is probably really an intelligence question and maybe you can't answer it here; if so, just say so—I am just curious as to what the level of their sustainability is. It is one thing to have a fairly sophisticated weapon system and another to actually be able to operate for some time.

General HAWLEY. Sir, I think you are correct that any definitive answer to that would be beyond my scope today. But I have seen nothing that would indicate that they can't sustain operations at a very impressive rate. They produce good military equipment. They put their top engineers into the art of producing that equipment and they do a very good job. It is reliable in almost every phase of military operations and very impressive. So I would have no reason to think that that has changed with the introduction of their fourth generation aircraft.

Senator WILSON. Well, now, you are talking about the people who are developing the aircraft. I am talking about the people who are getting their hands on them in the Third World. I am interested in what their sustainability is.

General HAWLEY. Whether or not they are able to maintain it and operate it effectively?

Senator WILSON. Yes.

General HAWLEY. I don't have a good answer for you on that, sir. I think General Jaquish may want to comment.

Senator WILSON. General.

General JAQUISH. Well, not specifically to that point. I think that we are more than willing to come back over here in a different session, perhaps in a classified session, and give you a more detailed rundown on that. But I would tell you that I believe there is consensus in the intelligence community that, as we look forward in the future, the current gap between our capabilities and the capabilities of the Third World will get closer, not only in terms of the equipment and their environment, but also in their capabilities to employ that equipment as more and more technology is exported into those countries.

Senator WILSON. Well, that is precisely my concern and what my suspicion was. To the extent that it becomes increasingly true, I think, Mr. Chairman, we are faced with the ironic situation that, while we celebrate perhaps prematurely, what we see as a stabilizing and a lessening of tensions among superpowers, I am not at all convinced that the world isn't getting more dangerous because of the proliferation of technology to politically very unstable regimes. I would think at some point—and I don't think we are able to do it today—we ought to have a classified briefing of the kind General Jaquish suggests, to find out just exactly what we are looking at.

Senator LEVIN. Let's take a look at that, perhaps in conjunction with or right after our next hearing, or even perhaps before our next hearing. We'll take a look at that possibility.

General JAQUISH. We'll be delighted to do that.

Senator LEVIN. We will look at that.

Senator WILSON. Thank you.

Senator LEVIN. Senator Shelby.

ROLE OF GUARD AND RESERVE

Senator SHELBY. Thank you, Mr. Chairman. I like one statement in the prepared remarks and I think it is central to where we are going. It is on page 2: "A combination of dynamic and rapidly changing factors is creating an increasingly complex and significantly different world environment and is making aerospace power projection even more important." I think that is a given, if we are going to have shrinking forces and that is the future in Europe and around the world—I'm talking about in the 21st century—what is the future of some of our bases?

How are we going to project force? Well, we are going to have to project force obviously through the Air Force, through aerospace, and the Navy. That is fundamental to all of us.

Now, with a shrinking force, but we hope a very efficient force, what role are the Reserve and the Guard going to play in the Air Force's plans? I have to believe that they would play a role. What kind of equipment are the Reserve and Guard going to have as far as aerospace potential? I think that is important. You know, what are we dealing with now? Are there a lot of F-4s there?

General HAWLEY. Sir, as you know, the Air Force has been a leader in application of the total force concept. Our Reserves, both components, are very capable, and we have equipped them with the most modern weapon systems, very comparable to what we have in the Active force. In fact, by the end of this year, 24 Guard and Reserve units will be operating the F-16. They do have a few F-4s, but mostly in specialized roles—tactical reconnaissance stands out as still using the F-4 in the Reserve structure. We will continue to modernize the Reserves as we reshape the force structure through the 1990s.

Senator SHELBY. Isn't it a given that if you are going to rely on Reserves, you are going to have to supply them with superior equipment and hardware that they can go right into battle with rather than second-rate equipment? I foresee that there is going to have to be a real emphasis on upgrading the Reserves and the Guard in a shrinking force.

General JAQUISH. I would concur with your remarks. Just drawing on my past experience, in a previous life I was the Inspector General for the Tactical Air Command. We, in the Active, had the responsibility of inspecting the Air National Guard units associated with our tactical air forces. They were inspected by Active duty people. The quality of those units is absolutely superb. When you give them the top quality equipment——

Senator SHELBY. But without the equipment, they are not going to fit in and we are playing games with ourselves.

General JAQUISH. I would agree with that. But I would hasten to add, as General Hawley correctly pointed out, the Air Force has, in fact, been very strident in that regard to keep our Reserve components very well prepared, not only with equipment but also in training and that sort of thing.

Senator SHELBY. Let's talk about money for just a minute. I know we don't have bean counters with us today. But it just seems to me that this would be fundamentally sound and clear, that you could have top grade Reserves and Guard with equipment for a lot less money, couldn't you?

General HAWLEY. Well, there are a lot of people who think that, sir, but——

Senator SHELBY. That's not necessarily true?

General HAWLEY. As we discussed, it is not necessarily true that you would save a lot of money.

Senator SHELBY. Why is that? I don't know and I am interested in this.

General HAWLEY. Well, for example, a typical Guard fighter unit has nearly a third of its personnel as full-time personnel.

Senator SHELBY. Maintenance and all that?

General HAWLEY. Maintenance and pilots both, yes, sir. Also, the cost to operate their equipment is identical to the cost to operate their counterparts in the Active force. It costs just as much for a flying hour to fly an F-16 in the Guard as it does to fly it in an Active unit.

Senator SHELBY. They wouldn't be flying as much, though, would they?

General HAWLEY. That is primarily where the savings come. They operate at a slightly reduced op tempo from their Active unit.

They are able to do that because they draw very highly experienced personnel, primarily out of the Active force, that allow them, because of that high experience level, to fly at slightly lower rates than the Active. That is where you really see the savings.

Senator SHELBY. But couldn't you use a lot of that equipment for more men and women in the Reserve? In other words, let's say you have 100 planes. If each individual were flying a little less than if they were in the normal service, that means that that plane would be available for more people to fly in the Reserve, wouldn't it?

General HAWLEY. That's generally not the case.

Senator SHELBY. Why?

General HAWLEY. Because the people aren't as available as much to fly. The maintenance people aren't available as much to generate the sorties for the aviators. Back to the issue of experience in the Reserves, without an appropriate balance between the Active force and the Reserve force, they won't be able to draw those experienced people into the Reserves that give them that capability to maintain a good readiness rate at lower op tempo. So, if we get this thing out of kilter, we will lose some of the very advantages that we enjoy today with our Reserve component.

AIR SUPERIORITY

Senator SHELBY. General Jaquish, you mentioned that the F-15 doesn't meet the ATF mission requirements. Are these mission requirements still valid in today's world? Is the threat still there? Do you still stay with that statement, basically?

General JAQUISH. Yes, sir. I would emphasize what Secretary Cheney said, I think to this committee yesterday, and that is the fact that air superiority is essential to all other military operations, be it operations on the ground, operations in the air, or operations on the sea. That is something that you absolutely have to do in a first class way.

As a part of the major aircraft review, there was a detailed look at the threat, including both representation from DIA, CIA, and other intelligence communities within the building, and there is no doubt that the threat is there and that not only warrants an air superiority airplane but warrants those kind of characteristics of the ATF.

RF-16

Senator SHELBY. What about the future of the RF-16, as far as the Guard is concerned? Are you going to get it to the Guard or not, General?

General HAWLEY. As you know, a large fraction of our reconnaissance capability today, tactical reconnaissance, is in the Reserve components. As we work ourselves through the modernization of the RF-4 fleet, probably with a pod equipped RF-16, you will find that most of that capability will be in the Reserve component.

Senator SHELBY. Thank you, Mr. Chairman. My time has expired.

Senator LEVIN. Thank you, Senator Shelby. Senator Thurmond.

Senator THURMOND. Thank you very much, Mr. Chairman. Mr. Chairman, I ask unanimous consent that my statement be entered into the record.

Senator LEVIN. It will, indeed.

[The statement of Senator Thurmond follows:]

PREPARED STATEMENT BY SENATOR STROM THURMOND

Thank you Mr. Chairman: I join you in your warm welcome of our witnesses. I expect that after yesterday's announcement on the results of the Major Aircraft Review their task has been complicated.

Mr. Chairman, the Air Force, like the other services, will be able to reduce its force structure due to the diminished conventional threat in Europe. Although this diminished threat may allow the Air Force to reduce the number of squadrons in the inventory, I do not believe we can allow the Air Force to yield its technological superiority.

The Soviet Union by all accounts is making significant—I want to emphasize significant—strides in improving the technology of their fighter aircraft. In recent press reports experts have indicated that the top line Soviet fighter now matches our best fighters—the F-15 and F-14.

Mr. Chairman, not only are Soviet aircraft getting better, but the Third World is increasingly acquiring sophisticated fighter aircraft. In meeting our Nation's contingency requirements in the Third Worlds the Air Force must be prepared to counter this increasingly sophisticated air threat to ensure our ground forces can accomplish their mission.

The U.S. soldier has always had the advantage of fighting in an environment where the Air Force had control over the air. Mr. Chairman, I hope this committee will see fit to support the Air Force programs which will allow it to continue to control the sky above our ground forces.

Thank you, Mr. Chairman.

ATF/F-15

Senator THURMOND. General Hawley, the delay in the production of the ATF will require the Air Force to depend on the F-15 beyond the year 2000. Considering the advancements in technology being demonstrated by the Soviet aviation industry, and the age of the F-15, are we placing at risk the aerial superiority we have relied on since World War II?

General HAWLEY. That's a tough one, Senator. Yes, there is additional risk imposed by slipping the ATF. I guess the question is, is it an acceptable risk? I think the judgment is that that is an acceptable level of risk, given the changing nature of the threat we face, the reduced likelihood of a high intensity conflict in Europe, and the capability of the F-15 to perform very well as we continue to modernize the capabilities of that airplane.

I had the opportunity to fly in the F-15 program for 6 or 7 years and watch the rate of modernization of the airplane as we enhanced its capabilities from the basic F-15A through the more modern F-15C, and, of course, the continued modernization of that platform, with our multistage improvement program, will enhance its capabilities to reduce the level of risk caused by that ATF slippage.

CAS/BAI

Senator THURMOND. General Hawley, the close air support and battlefield interdiction mission is, in my judgment, one of the most critical missions assigned to the Air Force. Considering the changes we are seeing in the conventional threat in Europe, is the Air

Force planning any change in the ratio of units dedicated to this role? If so, to what extent?

General HAWLEY. I think it is a little premature to arrive at a final number and tell you that we won't change the traditional ratio of about 25 percent of our fighter force devoted to the close air support BAI mission. That force structure is still being worked out, as Secretary Cheney pointed out yesterday. But it is clear that our close air support aircraft will have to have greater capabilities than we have had in the past if we are to be able to accomplish the mission that both the Army and the Air Force agree has to be done. So, there will be some potential for multi-role aircraft to be used in the close air support mission.

We will continue to modernize our A-10s and our F-16s in the near-term and intend to replace those with a missionized aircraft yet to be determined as a result of the acquisition process in the Defense Department. General Jaquish might have some comments on that aspect of it.

General JAQUISH. I would just like to add to that. In addition to the current number of wings that are identified as dedicated to the CAS/BAI mission, 29 of our current 36 tactical fighter wing force are CAS/BAI capable. So, under those conditions, where we needed additional CAS/BAI forces, we would certainly use those airplanes in that capability.

AIR DEFENSE SYSTEM

Senator THURMOND. Thank you very much. General Jaquish, during prior hearings on the Soviet threat, our witnesses have testified that the Soviets are continuing to increase their long-range bomber fleet. Since the United States currently has no air defense system, it seems to me that we are placing the country at risk to a Soviet bomber attack. As we withdraw squadrons from Europe, does the Air Force have any plans to dedicate additional units to the continental air defense role? If not, why not?

General JAQUISH. Senator, at this point, I think, as with a lot of other things, there are a lot of options under review. We have a sizable investment in strategic defense, OTH-B and those sorts of things. In terms of actual force structure and the use of airplanes in support of that, that will all be a process that should be worked out, and we should have it for your review in budget level detail by next January.

General HAWLEY. If I could add, sir, there is a fairly robust air defense system in place with nearly five wing equivalents of aircraft that would be committed in the case of an attack by Soviet long-range aviation to the air defense mission. Of course, that is continuing to be modernized as we go through the tactical Air Force modernization program.

AIRBORNE SELF-PROTECTION JAMMER

Senator THURMOND. General Hawley, the Air Force has withdrawn its funding support for the airborne self-protection jammer (ASPJ). The jammer would provide protection for our air crews and approximately 2,200 Navy and Air Force aircraft from radar controlled enemy missiles. Although the system may have had some

initial testing problems, I am told these have been overcome. Is that correct?

General HAWLEY. Sir, I think General Jaquish can speak to that better than I, on the testing status of the ASPJ.

General JAQUISH. Sir, the answer to that is no. The problems have been there, but the decision by the Air Force to cancel the ASPJ was basically a combination of affordability and system performance in those test series. So we are now looking at providing that kind of protection to those airplanes through a combination of ECM pods, chaff and flare dispensers, and appropriate radar warning equipment. So that decision from our perspective was a sound decision and, in fact, saved us $1.2 billion during the FYDP.

Senator THURMOND. Could you provide us the rationale for the Air Force's decision not to fund this program?

General JAQUISH. Yes, sir. I will provide that to you, if it is all right, for the record. But I will tell you that it was basically an affordability issue, Senator, and, based on early test results in combination with the costs associated with that system and the amount of money we were getting ready to spend on that system, we came to the conclusion that it is not a good investment.

General HAWLEY. And, if I could add, Senator Thurmond, our pod program continues to be supported, and we will accomplish most of the same objectives with our enhanced pods that all of our aircraft will carry.

[The information follows:]

ASPJ

The Air Force decided not to fund the airborne self-protection jammer (ASPJ) program based on affordability. To continue the program would require an investment of several hundred million production dollars prior to testing of the redesigned production verification systems. Furthermore, we believe that our F-16s can be adequately protected with a combination of radar warning receivers, expendables, and jammer pods.

Senator THURMOND. My time is up, Mr. Chairman. Thank you very much.

Senator LEVIN. Thank you, Senator Thurmond. Senator Glenn has a series of questions for the record which relates to the airborne self-protection jammer that I believe Senator Thurmond just made reference to. They will be asked for the record.

ATF/F-15

Let me go back to the F-15 modification issue. I think in answer to a number of Senators' questions, you indicated that you looked at that modification possibility and rejected it. In answer to Senator Shelby's question, I believe you indicated that you rejected it because the threat basically has not changed and cannot be met by that mod, but, indeed, requires an ATF to meet it. Could you describe what specific capabilities are required in the ATF that the mod of the F-15 would not have, and what would be the additional cost in the ATF roughly to achieve those capabilities which could be avoided if we had a mod of the F-15?

General JAQUISH. Sir, I would just say that there are some constraints here. I can speak to the issue generically; but there are constraints, obviously, from a classification perspective.

Where a modified F-15 falls down in a categorical sense is in the area of signature, and then the ability to use that signature in combination with its avionics and its missile systems to achieve a first shot/first kill opportunity against an adversary. Because the airplane was not built with signature in mind, when you get it into that environment, it just does not play out very well.

With regard to costing it out, Senator, we have not done a detailed cost analysis of this. But the F-15, when you start putting into it ATF capabilities to the extent that it is feasible—I am talking about ATF engines, ATF avionics, and making signature reductions to the degree that that is physically do-able—you end up with a very expensive airplane, rivaling that cost of an ATF, and yet it cannot meet the mission requirements of the ATF.

F-16

Senator LEVIN. Thank you. Back to the F-16, you indicated there is going to be a 4-year contract, a multi-year contract on that, and the first year, I believe you said, has not yet been definitized.

General JAQUISH. That's correct, sir, 1990 was the first year of the 150 4-year multi-year buy.

Senator LEVIN. And that is going to be definitized in May 1991?

General JAQUISH. That is correct.

Senator LEVIN. Is it possible that force structure changes from your perspective should require a review of the 1990 buy? I think you said yes to that question.

General JAQUISH. There is some possibility, yes, sir.

Senator LEVIN. But you would not know your perspective on that until after the beginning of fiscal year 1991?

General JAQUISH. We should understand that much better after we go through this POM process and the President approves that, and then we deliver that to you in January 1991 in budget level detail.

As I commented before, not only are we looking at that from the perspective of what it takes in terms of force structure and achieving the right kind of balance in the different mission areas, we are also looking at that from an industrial base and an industrial line and an economic order quality. So all of those factors are being played in there and I believe that that would be available to you in great detail next January.

Senator LEVIN. General Jaquish, there was a story in Defense News with the headline, "Air Force Angry Over Talk of F-16 Derivatives." I want to give you a chance to comment on that. It reads that Air Force officials have reacted angrily to efforts by General Dynamics to inform Pentagon planners of company funded design studies intended to extend the fighter line well into the next century. "Air Force anger, expressed primarily by Maj. Gen. John Jaquish, Air Force Director of Tactical Programs, and subsequent attempts to muzzle discussion on F-16 derivatives, stemmed from fears that enhanced versions of the front-line fighter will become more desirable as Defense Secretary Dick Cheney weighs cost effec-

tive alternatives to the service's $55 billion advanced tactical fighter program, sources say." Would you care to comment on that?

General JAQUISH. Well, Senator, I would just comment that the story is not factual and, as a part of that story, there is a line in there that says the Air Force purposely reclassified that briefing to a higher level to keep it from being shown around. That is just absolutely not the case. There was some administrative problem associated with the classification markings on the documents and we corrected that in accordance with standard procedure. The story is not accurate in that regard.

Senator LEVIN. In what regard?

General JAQUISH. It's not accurate in the regard that there was a gag order or anything of that nature put out by the Air Force. There had been some miscommunication between General Dynamics and the Air Force in this matter. We have discussed it at great length with the appropriate people from General Dynamics. As far as the U.S. Air Force is concerned—and I believe someone could speak in that regard for General Dynamics—it has been laid to rest and we have no problems in that regard.

Senator LEVIN. Then information is flowing freely and without any kind of restriction?

General JAQUISH. That is correct.

Senator LEVIN. Can you give us some information—no, my time is up. I will come back to that. General Wilson—I mean Senator Wilson. I almost promoted you. Next it will be Governor Wilson. I'd better be careful. [Laughter.]

Senator WILSON. Well, I like the way you are thinking, Mr. Chairman. [Laughter.]

AMRAAM

Senator WILSON. General Jaquish, I am told that the Red Teams have recently reviewed the AMRAAM program and that they have reported to the Defense Acquisition Board their key findings. Could you summarize those for us?

General JAQUISH. Yes, sir, I could. I think you may know that there were three Red Teams for us on this, one to focus on the area of design and producibility, one to focus on reliability and screening of the missiles, and the other to look at contracts. The overall results of that review were very good news from an AMRAAM perspective. They came back and clearly said that there were no design flaws associated with AMRAAM and, in fact, there is more than adequate design margin designed into AMRAAM; and that the problems that we had seen so far in reliability were problems associated with process and manufacturing. In fact, the failures that we have had in the captive carry program show some up-front problems that we would classify as infant mortality problems that are recognition of perhaps the need to screen those problems out.

There was a strong recommendation that those groups and the Air Force pull together a reliability growth plan as a result of all their recommendations and the contractor recommendations, in terms of corrective action. We are in the process of doing that. We have a responsibility to deliver that to USD(A) on the 4th of May.

I guess the last two things I would comment on, I would say they were very strong in terms of our capability to produce AMRAAM. These people said that if you laid out on one table an AIM-7 and opened it up and looked at it, and you laid out on another table an AMRAAM and looked at that, clearly you would come to the conclusion that AMRAAM is, in fact, producible in that sense.

I guess the last comment I would make, Senator, is that all of the elements of that Red Team recommended that we stay in a good volume flow with regard to production because the way to iron out those bugs in producibility and process is, in fact, to exercise that system. That was underlying throughout that presentation.

TEST PROBLEMS AND CORRECTIVE ACTIONS

Senator WILSON. Let me ask you a couple of questions about specific quality problems and about some of the test problems. I am told that the vibration levels on the inboard pylon of the F-15 have generated some quality problems. How serious are they and what is the status? What is being done to correct them?

General JAQUISH. Sir, as it turns out, the most severe environment that AMRAAM will ever face is on those shoulder-mounted stations of an F-15. The rail stations on an F-15 or all the stations associated with the F-16, the F-18, the F-14 are nowhere near as demanding on that missile, in terms of vibration and stress. We, quite frankly, had underestimated the severity of that environment. It was only after we got into the AMRAAM program and started to have these failures that we tied it to this environment.

Subsequent to that, we went out and instrumented missiles, put them on those stations, and captured what that environment is. It is, in fact, significantly different than we thought it was. What is happening there is in certain flight conditions the air spills out of the intakes and goes running across the underbelly of that airplane and sets up a vibration and an airflow in there that is really a dynamic factor.

Senator WILSON. What can you do about it?

General JAQUISH. Well, we have identified through captive carry those problem areas that this environment has overstressed. We have identified those corrective actions. We are currently flying those corrective actions. We believe we have those corrective actions in hand and those corrective actions will, in fact, be in place in the lot 2 missiles.

Senator WILSON. In other words, to cure that problem, there has to be particular care taken with the way you are flying the airplane?

General JAQUISH. No, sir. We have not in any way inhibited the flying of the airplane. What we have done is beef up certain sections in the missile to withstand that environment. As I commented before, we end up in the situation where we are proving the reliability of that weapon in its most demanding position on the F-15 aircraft.

Senator WILSON. Then the problem that was experienced recently in terms of the firing tests that I think proved a bit embarrassing, where there was a test that was undertaken to show the al-

leged capability of being able to hit four targets, that had nothing to do with the missile itself?

General JAQUISH. One of the four missiles had a problem associated with software in the missile. The other three missiles had nothing to do with an AMRAAM deficiency. We are now working up to reshooting that 4 missiles versus 4 enemy aircraft shot, and we think we will shoot it in the first couple of weeks of May.

We have gone back and made the software change to the AMRAAM that we needed to do. We have gone back and made the software changes to the F-15 radar that needed to be done, that was a part of that process, and we have reshot and verified the fix on the AMRAAM, as well as reshot the fix in the F-15.

Within the last 5 weeks, we went out and shot two missiles at the full-up scenario, and both those missiles were successful. One was a direct hit and the other was inside the lethal kill radius. So we are confident that we have those fixes in hand and we are working up to that shot in the first part of May.

Senator WILSON. Three of those four missiles in that earlier test you think were attributable to the software problems in the plane?

General JAQUISH. In the radar, yes, sir, that is correct.

Senator WILSON. Thank you.

Senator LEVIN. Senator Thurmond.

CLOSE AIR SUPPORT

Senator THURMOND. Thank you, Mr. Chairman. General Hawley, based on the Soviet experience in Afghanistan and the ever-increasing sophistication of the anti-aircraft systems available to the individual soldier, is the close air support mission still viable?

General HAWLEY. Yes, sir. Close air support is a complicated subject and it involves the application of all the arms that the Army and the Air Force can bring to bear on the problem. The lethality of the airfield makes it a difficult mission for some of our older aircraft, and that is why we are concentrating so hard on giving our newer CAS airplanes and our older ones better capabilities to solve the toughest part of the problem, which is identifying the target.

You just don't have the luxury to go orbiting overhead, find the target, and then roll in and strike it at your leisure. You have to have a way to pick up that target, identify it for the pilot, and for that reason we are incorporating things like the automatic target hand-off system, Pave Penny, which gives us the capability to identify the target with a laser designator and then pick it up in the aircraft so that we could find it quickly, allowing the aircraft to use the standard tactics that we use to defeat threats and still arrive on the target area, pick up the target promptly, and destroy it.

STRATEGIC LIFT REQUIREMENTS

Senator THURMOND. General Jaquish, as the United States reduces its forward deployed forces, our reliance on strategic lift will become more critical. Yesterday, Secretary Cheney briefed the Armed Services Committee that he is recommending that procurement of the C-17 be limited to 120 aircraft and that the 25 aircraft per year procurement rate be slipped to fiscal year 1995. Consider-

ing the problems the Air Force is having with the C–141s, what impact will a delay in the C–17 production have on our strategic lift requirements?

General JAQUISH. The delay of the C–17 will put some additional stress on our currently fielded airplanes, the C–141 and C–5. But the analysis that came through the major aircraft review indicated that it would not have a significant impact on our capability to mobilize and move equipment forward, as required.

WEAPON SYSTEM PRIORITY

Senator THURMOND. General Hawley, what weapon system do you consider the highest priority requirement for the tactical Air Force?

General HAWLEY. Sir, I think I can say, without fear of contradiction, that the ATF, in conjunction with the AMRAAM, is our highest priority.

Senator THURMOND. Mr. Chairman, thank you very much. Thank you, gentlemen, for your appearance.

AMRAAM

Senator LEVIN. On the AMRAAM again, if we could go into that a bit more, there are some problems that you have described. I am wondering whether those problems are being fixed at the contractor's costs or at the Government's costs.

General JAQUISH. The warranty, Senator, on the AMRAAM is such that lots 1, 2, and 3 are warranted for workmanship and quality in that sense. Lot 4 will have a full warranty to include our newly discovered F–15 environment. The Joint Program Office is currently working with both contractors now to resolve those deficiencies that are associated with the F–15 environment as the cause and, therefore, may lead to government responsibility and funding and those that should be associated with those companies. We anticipate that that process will lead to some conclusion and some understanding of that in the next 3 to 6 months.

Senator LEVIN. 3 to 6 months?

General JAQUISH. Yes, sir, that is an ongoing process right now.

Senator LEVIN. What is being produced now?

General JAQUISH. The 1991 buy is for a—let me check. I think it is lot 5, sir.

Senator LEVIN. Lot 5?

General JAQUISH. I believe so. But I need to check that.

[Pause]

General JAQUISH. That's correct. The 1991 buy is lot 5.

Senator LEVIN. So they have already produced lots 1 through 4?

General JAQUISH. 1 through 4, we have procured in total at this point 1,480 missiles, and we have delivered 140. The 140 missiles that we have delivered are the lot 1 missiles.

Senator LEVIN. That's lot 1.

General JAQUISH. Yes, sir.

Senator LEVIN. So, there the workmanship warranty is the only one we basically have.

General JAQUISH. Materials and workmanship, yes, sir.

Senator LEVIN. Are we arguing that part of the problem or all of the problem on lot 1 AMRAAMs was covered by that warranty? Is that the Government's argument?

General JAQUISH. No, sir, I don't believe that is the case.

Senator LEVIN. So we are not arguing for any contractor fix on lot 1, at their expense?

General JAQUISH. I cannot say that, either. We're not arguing that it's all the contractor's fault in this regard.

Senator LEVIN. All or part?

General JAQUISH. Some part I believe is our opinion at this point, that is correct.

Senator LEVIN. Would you let this subcommittee know what our position is as to the contractor's responsibility proportionally on each of the first four lots, would you let us know that for the record?

General JAQUISH. I most certainly will, in detail, sir.

[The information follows:]

AMRAAM WARRANTY

The Government and the contractors have shared responsibility for resolving the problems that have been encountered on the early AMRAAM production lots. Design changes required to achieve original full scale development (FSD) and initial production requirements are the responsibility of the contractors. However, AMRAAM FSD design/performance requirements did not capture the severe vibration environment encountered during F-15 combat maneuvering. The most severe of which is experienced when throttle chops and windup turns are combined with low altitude maneuvering. This phenomena was discovered during the initial operational test and evaluation in 1987 and was fully characterized by February 1990. Changes required as a result of this environment are the responsibility of the Government. All F-15 environment design changes are being negotiated into Lot IV production contracts and these and future missiles will be fully warranted.

RECONNAISSANCE AIRCRAFT

Senator LEVIN. General Hawley, over the years the Air Force has maintained dedicated squadrons of reconnaissance aircraft. I am not sure whether you have yet been asked about this. Currently, there are nine squadrons of RF-4s, and the Air Force has a plan to install reconnaissance equipment on F-16s to modernize those units. The Navy and Marine Corps have decided that they don't need and cannot afford to have specialized squadrons for reconnaissance and, instead, use reconnaissance pods that can be installed on F-14 aircraft, as needed. If the Air Force adopted the same approach, we could save $2 billion over the next 5 years. Why not adopt the Navy-Marine Corps approach and save that money?

General HAWLEY. I guess I would not be able to vouch for the $2 billion, sir. But we do intend to move to a podded F-16 for the reconnaissance mission. We're going to use the same sensors that the Navy is using in that pod, and the real issue is whether that RECCE unit, with a podded RF-16, which will retain all of its fighter capabilities, will have multi-mission tasking. That issue is not resolved at this point in time. As you have pointed out, currently we use specialized units for that.

Senator LEVIN. Will you maintain dedicated squadrons of reconnaissance aircraft, or don't you know yet?

General HAWLEY. We're considering the options, and I cannot give you how that is going to come out. We may well try to retain it because there are a lot of advantages in terms of the proficiency that those crews develop by having a single task. The Navy can't afford that because they just don't have the room on the carrier for those kinds of specialized missions in the reconnaissance unit. They have to use a multi-mission role. As our force gets smaller, we may wind up being driven to the same thing. But that is not resolved yet.

Senator LEVIN. When will that be resolved?

General HAWLEY. Sir, I can't give you a date.

Senator LEVIN. This year?

General HAWLEY. That will be worked through in the development of the POM.

Senator LEVIN. Early next year?

General HAWLEY. Yes, sir.

Senator LEVIN. Do you have any more questions, Pete?

Senator WILSON. Yes.

Senator LEVIN. Senator Wilson.

EXAMPLES OF MODERNIZATION GOALS

Senator WILSON. Thank you, Mr. Chairman. General Hawley, you stated that one method the Air Force would be using to meet the modernization goals economically is to modify existing aircraft. There has been quite a bit of discussion this morning on that already. I am just curious as to what some other examples might be.

General HAWLEY. Yes, sir. Of course, we have the multi-stage improvement programs for the F-15 and the F-16. We have already in the budget that you are considering funds to put the automatic target hand-off system, some hardening, and a 30 mm gun-pod on F-16s to enhance their mission capability in the CAS area. The improved performance engine in the later block F-16s will add a great deal of capability. And, of course, we continue to work very hard on our avionics upgrades in the area of both offensive and defensive avionics to ensure that the aircraft stay abreast of the threat and have the capability; the incorporation of AMRAAM capability in the F-16; AIM-7 capability into our air defense F-16s—all are good examples of how we have modified these airplanes to keep them up with the threat and incorporate the latest technologies.

MAN-PORTABLE AIR DEFENSE SYSTEMS

Senator WILSON. At some point, Mr. Chairman—I don't know that it warrants an entirely separate hearing—but I would be curious as to what we are doing. The question from Senator Thurmond about close air support touched on something that I have been thinking about. With the shoulder-mount capability, an infantryman, it now seems, is able, after about half a century, to equalize the odds and maybe more so. I was wondering what we are doing to try to develop either technology or tactics that can continue to produce that. I heard your response to the Senator, but I would think it would be a little disquieting, given the capability of some

of these Stinger-like weapons, that have now, I gather, pretty well proliferated into the Third World.

General HAWLEY. Sir, they are. Of course, that increases our emphasis on developing threat warning systems, improved flare dispensers, and flares to counter those systems, together with the integration required to put the threat warning and the flare together and make them effective. We continue to put effort into those fields.

Senator WILSON. Even if you have this enhanced target acquisition technology so that you do shorten the time of the attack, they still can get one off. Particularly if your attacker is part of the target being attacked, I would think you have a high level of uncertainty for our attacking aircraft.

General JAQUISH. Sir, may I comment in that regard?

Senator WILSON. Yes, General Jaquish.

General JAQUISH. I think there is no doubt about it, the manportable air defense systems that are out there today and are coming down the street are much more capable than they have been in the past. But, through a long series of studies, we have come to some basic fundamental conclusions, and those conclusions endorse that speed is critical to survival in those situations; that having the kind of avionics that General Hawley talked about, and not getting in there and having them lollygagging around, looking for targets and that sort of thing, we're doing that. We're also looking for those kinds of systems, both avionics and FLIRS types of systems, that will allow you to do close air support in all weather, in night conditions, and under-the-weather kind of conditions, which kind of begins to take those kinds of things away.

In addition to that, we believe you need to do some hardening in these airplanes. As a matter of fact, as just a normal part of our continual upgrades to the F-16 and the F-16 Block 50s, we are introducing some additional hardening in that airplane to include halon (fire-retardant) and those kinds of things.

I understand what you are saying and you are exactly correct. But there is a fairly balanced approach to this in that you can't rest on any one of those things. We think we have a reasonable course of action in that regard.

ATA COMMONALITY

Senator WILSON. My last question is one that I asked the Secretary yesterday. It has to do with commonality, ATA commonality. I recalled the lack of success that we had with the TFX. What is the Air Force commitment to the ATA in terms of having some brighter prospect for commonality between the Navy and Air Force that we have not seen in the past? I mean, we have talked about it, but we have not really achieved it.

General JAQUISH. I would say, Senator, that the Air Force is, in fact, committed to the ATA. I think you can evidence that by the fact that we have been there with our money, ready to put it up and put it on to the ATA.

With regard to commonality, in previous experience I think what is currently going on in regard to the A-12 ATA or the ATF/NATF is a little different situation than we had with the TFX. As I recall,

the situation with the TFX was more along the lines that neither one of the services was that interested in that airplane. So you really didn't have any consensus at all. In the case of the ATF and the ATA, I think you are going to see some real strident jointness in that regard.

The Air Force, with regard to the modifications that we think we need to do to the A-12 to satisfy our requirements, they are very minimal. They are such things as an Air Force refueling receptacle because our tankers are configured differently, and that sort of thing. There are some avionics upgrades that are more compatible with our weapons.

Senator WILSON. Your tankers are configured differently?

General JAQUISH. Well, we do probe and drogue type refueling, a boom refueling versus probe and drogue, with the Navy. It is those kinds of mundane things. So, in terms of commonality, the Air Force ATA will be 100 percent common with the Navy A-12, other than those three or four little things that we are doing in that regard.

Senator WILSON. All right. That does make a point. You have a better chance of achieving commonality if they both want it than if they both don't.

General JAQUISH. Yes, sir. [Laughter.]

Senator WILSON. The right kind of commonality, that is. Thank you very much, gentlemen.

Senator LEVIN. Senator Wilson, thank you. Gentlemen, the record will stay open for your answers to those questions, and there are a number of other Senators who have asked questions, and those questions will be made a part of the record. Gentlemen, thank you for your testimony. We appreciate your being here.

Thank you. We will stand adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

ECM PODS

Senator LEVIN. If ECM pods are used for protecting the Lantirn-equipped F-16C aircraft, will that not affect the airplane's range and weapons carrying capability?

General JAQUISH. Yes. The operational commander would decide on pod installation depending on the threat environment. The pod could be placed on either the centerline station or a wing station (in lieu of fuel or ordnance). In either case, drag is increased and range decreased, and one potential weapon station lost.

Senator LEVIN. Does the Air Force now plan to use ECM pods on that airplane or is there still a plan to install an internal ECM system?

General JAQUISH. Currently, the Air Force plans to use ECM pods on this airplane.

Senator LEVIN. If an internal ECM system is still called for, what systems are being considered?

General JAQUISH. The Air Force terminated its participation in the ASPJ program for affordability. As a result, funding for development and production of an internal jamming capability for the F-16C was eliminated.

Senator LEVIN. When will these systems be available for the F-16?

General JAQUISH. There are no plans for an internal jammer for the F-16C at this time due to affordability.

Senator LEVIN. How much testing and integration is required?

General JAQUISH. There are no plans for an internal jammer for the F-16C at this time due to affordability.

Senator LEVIN. Have these systems undergone as much testing as the ASPJ system?

General JAQUISH. There are no plans for an internal jammer for the F-16C at this time due to affordability.

ASPJ

Senator LEVIN. If a system other than ASPJ is used on the F-16C, what additional costs will be incurred, i.e., testing, integration, group A changes?

General JAQUISH. The system to be used in lieu of an ASPJ on the F-16C is electronic countermeasures pods, ALQ-131 Block II, and ALQ-184. No additional costs will be incurred for testing, integration, or group A changes.

Senator LEVIN. Does your rationale for withdrawing from the ASPJ program—the system designed to protect the F-16—also apply to other ECM programs such as the F-15's ALQ-135 system?

General JAQUISH. The rationale for the Air Force withdrawing from the ASPJ program was affordability; fortunately, we have ECM pods as a back-up system. Other electronic countermeasures programs in development and production are affordable considering the cost, progress they have made, and operational need.

Senator LEVIN. Do these other systems aboard other fighter aircraft counter the modern threat?

General JAQUISH. [Deleted.]

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

ATF

Senator GLENN. I understand that neither of the two ATF prototypes are near representative of an NATF aircraft. With the slowing down of the ATF program, will the Air Force ensure that a more representative Navy version of the ATF be developed before proceeding to full-scale development?

General JAQUISH. The Navy ATF program follows the Air Force program by 3 years. The winning team must validate through engineering data that they have a design that is acceptable to the Navy. Both teams in the competition are working that problem very hard; they can't win without validating that Navy requirements can be satisfied. The Navy will be a participant in the source selection for FSD.

Senator GLENN. I also understand that the ATF is being developed as a single mission fighter aircraft. Given the current budget limitations and advanced technology available today, it seems to me that the ATF/NATF should be a multi-role aircraft such as the F-15E and F/A-18. How would you respond?

General JAQUISH. The first mission that must succeed for all other operations to be successful is air superiority. This is the first concern of any joint force commander. For this reason the ATF will be missionized for air superiority. Tradeoffs to missionize for the air-to-ground mission would adversely impact this mission. However, the ATF will have an inherent capability to carry air-to-ground munitions.

F-117A

Senator GLENN. General Jaquish and General Hawley, from the media it would appear that the reviews of the first combat performance of the F-117A are mixed. What can you tell us about the F-117A operations in Panama?

General JAQUISH. The Air Force Inspector General is conducting a review of the F-117A participation in Operation Just Cause to include the information flow after the operation. To comment in any depth at this time would be premature. The review is being conducted at the request of General Welch, the Air Force Chief of Staff, and will be briefed to Secretary Cheney the week of May 14, 1990. It is clear at this point, however, that the weapons system worked as designed.

Senator GLENN. Last year the Air Force testified to the high operating and support costs of maintaining the small SR-71 force. It would seem to me that a similar situation may exist with the relatively small number of F-117s to support. What are the annual operation and support costs for maintaining the F-117 force?

General JAQUISH. The annual operation and support costs for the F-117A in fiscal year 1990 are approximately $339 million. This includes $79 million in military pay, $91 million for base operations at Tonopah, $7 million in fuel costs, $5 million for consumable supplies, and $15 million for logistics support.

TOTAL FORCE

Senator GLENN. General Hawley, in your statement you indicate that about 30 percent of the total fighter force is in the Air Force's Reserve components. As you

may know, last year I requested that the Department of Defense complete a total force study to see if there was the most operationally and cost effective balance between Active and Reserve components. As a result of that ongoing study, will the current 30 percent Reserve figure in the fighter force change? Will it increase or decrease, and why?

General JAQUISH. The report on total force policy you referred to is being prepared by the OSD. Significant reductions in the number of Active tactical fighter wing equivalents will most likely be included in the President's budget when it is submitted to Congress in January 1991. These reductions are driven by fiscal constraints and a reassessment of prudent risk. Although some slight reduction in the number of Reserve fighter wings may eventually occur due to re-rolling of existing units to other missions, no significant change in the number of Reserve fighter wings is being considered at this time. Thus, the probable reduction in the number of Active wings would increase the percentage of Reserve wings in the total fighter force above the current figure of approximately 33 percent. However, no final decision has been made on this force structure issue at this stage of the POM development.

DRUG INTERDICTION

Senator GLENN. General Jaquish and General Hawley, the services are devoting more and more time and resources to drug interdiction. Will you summarize the Air Force (Active and Reserve) involvement in the Department of Defense interdiction effort?

General JAQUISH. The Department of Defense has been assisting law enforcement agencies (LEAs) for quite sometime. The Air Force has been actively supporting this effort; specifically, the Air Force is a major contributor with its detection and monitoring assets. This outlines the Air Force Active and Reserve involvement in the DOD interdiction effort. The Active Air Force has committed and programmed resources to the five supported CINCs—CINCSOUTH, CINCLANT, CINCNORAD, CINCPAC, and CINCFOR.

[Deleted.]

Supporting both SOUTHCOM and LANTCOM is the Caribbean Basin radar network (CBRN). This network, consisting of 17 ground-based radars, will provide long range surveillance of drug trafficking routes. Additional Air Force support to CINCLANT includes two TPS–43 radars in the Bahamas and one in the Dominican Republic (DOMREP). The Air Force also mans a U.S. Customs-owned radar in the DOMREP. [Deleted.] Additionally, WC–130s and B–52s are providing maritime surveillance in LANTCOM's area of responsibility.

CINCNORAD is the primary provider of air track information to civilian LEAs. Air Force support to LEAs includes data provided by 44 joint surveillance system (JSS) radars, one aerostat, and seven mobile ground tactical air control system (TACS) radars. [Deleted.] Also, the four Air Force sector operations control centers (SOCC) provide the essential interface between all Air Force surveillance assets and LEAs.

Air Force supports CINCPAC by providing inspection teams at ports of entry. Military-working dog-teams are also available upon request. [Deleted.] In addition, B–52s provide maritime surveillance along the southwest California coast.

CINCFOR began counter-drug operations October 1989. [Deleted.] Requests for airlift and canine inspection teams to support LEAs are expected to increase.

The major support to Active Air Force counter-drug operations is in flying hours support. For fiscal year 1990, Air Force flying hours support is projected to be approximately 23,000 hours. Besides flying hours, the Air Force counter-drug manning for the five supported CINCs is 85 USAF personnel. Air staff manning consists of six officers and one NCO working counter-drug issues. In addition, the Air Force is also tasked to provide 71 personnel to support Federal LEAs. Besides personnel, various support to LEAs is provided by facilities and equipment loans from several Air Force bases.

The Air Force Reserves also contribute to the DOD interdiction effort. In fiscal year 1990, the Reserves have performed one operational counter-drug mission in support of the U.S. Coast Guard. One HC–130 and one HH–3 helicopter were used during the operation. The Reserves have initiated an aggressive program to educate agencies involved in counter-drug operations on Reserve capabilities and to offer support.

The Air Force has provided support for counter-drug operations for many years. Involvement has continued to increase and is prominent in the CINCs' current

counter-drug operations plans. Future support to the CINCs will be based on new initiatives, lessons learned, and modernized equipment.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

AMRAAM

Senator MCCAIN. We have heard that the AMRAAM has been experiencing flutter problems on the inboard stations of the F-15. Are you experiencing the same problem on the F-15's outboard stations or on any other aircraft such as the F-16 or F-18?

General JAQUISH. The vibration problem that the AMRAAM has experienced is confined to the fuselage stations of the F-15. Instrumented vehicle and test flights have shown no problem on any other station of the F-15 nor on either the F-16 or F/A-18. The F-15 fuselage (inboard) station vibration (flutter) problems are due to the missiles' close proximity to the engine inlets. The F-15 pylon (outboard) stations do not experience the same problems since the pylon stations are far from the inlets. The F-18 fuselage environment has been measured and is only 60 percent as severe as the F-15 fuselage levels. We have not experienced problems with the F-18 carriage and based on the measured data we do not believe there is a problem. The F-16 stations do not experience this vibration problem.

Senator MCCAIN. Would you characterize the AMRAAM's test program as positive thus far?

General JAQUISH. With the one exception of extended AMRAAM captive carry on the F-15 fuselage stations, both the captive carry and free flight portions of the test program have been extremely successful. The AMRAAM was most recently fully successful in demonstrating capability against multiple targets. Four AMRAAMs were launched almost simultaneously and scored three direct hits and a within-lethal-distance near miss against four target aircraft in the presence of intense electronic countermeasures. This was the most complicated shot ever done on any air-to-air missile and was an outstanding success. Further, the missile has a 74 percent success rate when fired against targets. This success rate is considerably higher than that of the AIM-7 at the same stage of testing. We would also note the test successes include shots that could not be done by any other air-to-air missile in the world.

Senator MCCAIN. It is my understanding that the AMRAAM's test results have been excellent compared to previously fielded air-to-air missiles. If this is the case, why is the AMRAAM perceived as having major reliability problems?

General JAQUISH. The AMRAAM is perceived as having major reliability problems for essentially two reasons: (1) the F-15 fuselage problem was discovered late in the FSD program when corrective action time was limited. Further, both contractors have experienced failures in some vendor-supplied parts. Although both these issues are being resolved, they have had a negative impact on reliability test results; and (2) reliability expectations for the AMRAAM are much higher than for previous generation missiles, in particular, the Sparrow. Early generation Sparrow missiles were fielded with MTBFs as low as 50 hours. The development of AMRAAM reliability has been much faster than Sparrow, and would have been very impressive without the F-15 fuselage station problem. For example, the reliability on the F-15 rail stations is approximately 200 hours MTBM at this time. We project at least this level (200 hours) today on the F-16 and F-18.

Senator MCCAIN. It is my understanding that the recently completed "Red Team" review of the AMRAAM indicated that there are no major design problems with the missile and that the net effect of the F-15 inboard station environment has been to accelerate the discovery of defects, which, in my view, is not a bad thing at this time of the program. Would you please comment on this?

General JAQUISH. Your understanding of the "Red Teams" is correct and we concur with the view that the F-15 environment is accelerating the discovery of process-caused defects. This would normally be a positive factor in achieving reliability growth as the process defects are fixed. However, AMRAAM funding is currently tied to the achievement of field-measured reliability values. In a short captive carry test program, the test results depend greatly on the early results. Even a single additional failure in a short test can cause the test program to be described as a failure. Therefore, while accelerating the finding of defects is definitely desired in a technical sense, it is not desirable in a fixed-length reliability demonstration.

Senator MCCAIN. I understand that as the AMRAAM captive carry program has progressed, you have incorporated and tested fixes to problems encountered along

the way. Would this not indicate that the missile's reliability is actually higher than is currently portrayed and that production AMRAAMs would actually have higher reliability than current thinking allows?

General JAQUISH. Almost all the problems seen in captive carry testing have been fixed and tested. In addition, the contractors have incorporated substantially improved environmental stress screening in their factories, and reviewed and improved the performance of their vendors. AFOTEC, the independent test organization, normally reports both an observed and a projected value of reliability based upon the availability of proven fixes. Many of the AMRAAM fixes have been demonstrated by as much as 1,200 hours of subsequent testing. Therefore, at the conclusion of testing the projected value of reliability based upon proven fixes will be very near 200 hours. The most recent test results show a dramatically increased reliability with only four failures in the last 1,000 test hours (approximately) for a reliability of between 200 and 250 hours over that interval. However, the F-15 environment caused several additional failures early in the program.

Senator MCCAIN. Has any air-to-air missile ever been tested against as extreme an array of countermeasures as the AMRAAM?

General JAQUISH. No. Sparrow and Phoenix missiles were not required to be as extensively tested during their equivalent to the AMRAAM's current phase of testing.

Senator MCCAIN. Is it true that the AMRAAM will accumulate fewer captive carry hours per missile in tactical use than it does in current captive carry tests?

General JAQUISH. Yes, it is true that on average, the missiles in tactical use in the Air Force will accumulate fewer hours than those currently in the test program. Air Force data (peacetime Sparrow) indicates that the average accumulation of time for missiles that are flown is 32.8 hours over the life of the missile. Many of the AMRAAM missiles in the test program have already accumulated over 100 successful test hours apiece. While the Navy may accumulate more hours on average, the F/A-18 does not demonstrate the critical, fatigue-inducing environment of the F-15 fuselage stations.

Senator MCCAIN. Does this mean that there will be less exposure to the F-15 flutter environment in actual use?

General JAQUISH. Yes. The F-15 vibration (flutter) problem is most severe at low altitudes. Peacetime tactical use is normally at high altitude and seldom at low altitude. Wartime tactical use could provide similar exposure dependent upon the specific scenario.

Senator MCCAIN. It would also seem that even without the current indicated reliability growth, we are talking about maintenance frequency and not performance. Would you concur with this statement?

General JAQUISH. Yes, since the AMRAAM built-in-test is capable of finding 97 percent of possible missile failures, low reliability would result in more maintenance actions. The AMRAAM-demonstrated performance capabilities exceed all other air-to-air systems.

Senator MCCAIN. How will the Secretary's tactical aircraft review affect our requirements for munitions?

General JAQUISH. Slips or reduced production of ATF/NATF and A-12/ATA will underscore the requirement to maintain a technology advantage in current and future weapons development and acquisition.

Senator MCCAIN. How will this affect our inventory requirements for the AMRAAM?

General JAQUISH. Air-to-air missile requirements are primarily threat based. Thus, force structure is blended with employment assumptions to determine each air-to-air missile requirement with respect to that threat base. Slips or reduced production of ATF/NATF and A-12/ATA will slip or slightly alter each missile requirement; however, the total AMRAAM inventory objective requirement should remain relatively unchanged.

MAVERICK

Senator MCCAIN. The IR Maverick is effective against nearly all of the point targets attacked by aircraft. In the current political environment, are we confident enough to totally stop production of the only weapon that has capability against such a broad spectrum of targets?

General JAQUISH. We concur that Maverick is an effective weapon against many point targets. However, it is not valid to say that Maverick is effective against "nearly all" of the point targets to be attacked by our aircraft. U.S. intelligence points to a proliferation of very hard point targets which even the AGM-65G (large

warhead) will not penetrate. Hence, the U.S. Air Force is developing the I-2000 bomb and the AGM-130 standoff munition to handle these very hard targets. Moreover, during the yearly weapons evaluations conducted by the tactical air forces, Maverick effectiveness is hampered by the significant pilot workload necessary to employ the weapon.

We are also keenly aware that the U.S. Air Force simply cannot afford everything it would like to have. We have reviewed the Maverick stockpiles and find them substantial. Moreover, we are pursuing the sensor fuzed weapon (SFW) which will be used against massed armor. The SFW will free some Mavericks which were previously assigned for armor targets to be used against the balance of the Maverick point target set.

In summary, what we are saying is that when we consider the reduced armor threat in Europe, the SFW coming into the inventory beginning in fiscal year 1992, the inventory of Mavericks we have and will have in fiscal year 1992, the ability of the SFW to offer multiple kills per pass versus Maverick's one kill per pass, and the need to provide the warfighting CINCs with the best bang for the buck—then cancellation of the Maverick buy after fiscal year 1990 is a risk the U.S. Air Force is willing to take.

[Whereupon, at 10:58 a.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1991

WEDNESDAY, MAY 2, 1990

U.S. SENATE,
SUBCOMMITTEE ON CONVENTIONAL FORCES
AND ALLIANCE DEFENSE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

DEPARTMENT OF THE NAVY'S FORCE STRUCTURE AND MODERNIZATION PLANS

The subcommittee met, pursuant to notice, at 2:05 p.m., in room SR-222, Russell Senate Office Building, Senator Carl Levin (chairman of the subcommittee) presiding.

Committee members present: Senators Nunn (chairman of the full committee), Levin, Cohen, Wilson, McCain, and Coats.

Committee staff members present: Christine C. Dauth, chief clerk; and Daniel G. Sakura, research assistant.

Professional staff members present: Creighton Greene, John J. Hamre, and Michael J. McCord.

Minority staff members present: George W. Lauffer, Durwood W. Ringo, Jr., and Mark B. Robinson, professional staff members.

Staff assistants present: Lori M. Jackson, Lisa H. Kettlewell, and Cindy Pearson.

Committee members' assistants present: Kenneth N. Luongo, assistant to Senator Levin; Charles C. Smith, assistant to Senator Dixon; Milton D. Beach, assistant to Senator Glenn; Terence M. Lynch, assistant to Senator Shelby; Dale F. Gerry and James M. Bodner, assistants to Senator Cohen; Patrick F. McCartan, assistant to Senator Wilson; Anthony H. Cordesman and Marshall A. Salter, assistants to Senator McCain; Charles G. Pearcy, assistant to Senator Lott; and Eric H. Thoemmes, assistant to Senator Coats.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Senator LEVIN. This afternoon our subcommittee meets to review Department of Navy plans for modernization of its aviation forces in light of impending reductions in force structure. As I indicated last week during earlier hearings, we will have to evaluate the Navy and Marine Corps budget proposals in light of the substantial changes that have occurred during the past year. The following are some of the questions that we should consider as part of this review.

The Navy of the future is likely to be somewhat smaller than it is today. How should we amend procurement and research and development programs in light of the smaller force structure?

The major naval aviation modernization programs predate the changes of the past 2 years. Do we still need to proceed with those programs and under what schedule?

Those are just a few of the questions which we are going to have to address.

Our witnesses this afternoon are Vice Adm. R.M. Dunleavy, Assistant Chief of Naval Operations for Air Warfare of the U.S. Navy; Lt. Gen. Charles H. Pitman, Deputy Chief of Staff for Aviation, U.S. Marine Corps; and they are joined by Vice Adm. Richard C. Gentz, Commander of the Naval Air Systems Command. Our witnesses today have distinguished records in service to our country. You are now serving in perhaps your most difficult assignments. How well we manage these key years of transition will determine the size and the health and vitality of the Navy and the Marine Corps into the next century. I'll ask my colleague, Senator Wilson, if he has any opening remarks.

Senator WILSON. Thank you, Mr. Chairman. I would like to join you in expressing my sincere appreciation to Vice Admiral Dunleavy, Lieutenant General Pitman, and Vice Admiral Gentz for meeting with the subcommittee to discuss the future of one of our country's most important assets, naval aviation.

Before we begin, though, I am tempted to inquire about the seating order here at the witness table. I just wonder whether that supports Admiral Dunleavy's long-standing claim that one naval flight officer is the equivalent of two naval aviators, or General Pitman's contention that the naval flight officers require constant supervision. [Laughter.]

Admiral DUNLEAVY. Actually, Senator, it takes six of them. [Laughter.]

Senator WILSON. Well, all of you are to be commended for your leadership at a time of dramatically and rapidly changing priorities and a time of uncertainty of threat assessment. I think you have, together, molded an extraordinarily, mutually supportive aviation team from scarce, and in many cases, aging assets. It seems to me that you are challenged, as are my colleagues on this subcommittee, to continue to place a high priority on force modernization, even in the face of anticipated fiscal limitations, in order to ensure our Nation's place as the technology leader of the world.

We are, I think, confronted with another problem and that is of perishable technology and the need to protect it and to see that, in fact, we do not stockpile it until the time that it is of no great use to us. To this end, we are required to consider the spectrum of different possibilities, from cancellations and deferrals, to go-aheads for R&D completions which lead to production. To achieve this goal, we must ensure that existing programs address existing and projected threats, and by continuing a case-by-case approach, we can maintain a posture which will give us the flexibility to stand up new technologies to meet short warning or unpredictable contingencies.

Notwithstanding my earlier jest, I know, Admiral Dunleavy, that you have a very personal investment in the future of naval avia-

tion, an investment of which you are very proud. I congratulate you for having only this past week pinned the coveted wings of gold on your son, Mark. I wish him and you well as he follows in his father's distinguished footsteps.

General Pitman, I understand that this will be your last appearance before this subcommittee due to your retirement plans.

General PITMAN. Yes, sir.

Senator WILSON. Let me extend to you my personal appreciation for the superb contribution that you have made toward the continued strength of the Corps and the Nation. I wish you and Mrs. Pitman a very well-deserved success in your retirement. I thank all of you for your presence here today. Thank you, Mr. Chairman.

Senator LEVIN. Thank you, Senator Wilson. General Pitman, Senator Wilson speaks for all of us relative to your service to your country, which we have enjoyed. I hope you have some real benefits from the retirement that you so deserve.

General PITMAN. Thank you, sir.

Senator LEVIN. Senator Cohen.

Senator COHEN. I would defer to Senator McCain, Mr. Chairman.

Senator LEVIN. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman. I also welcome the witnesses today and I look forward to hearing from them. General Pitman, please accept my congratulations for an outstanding career of service to our Nation and the Marine Corps.

I thought the Secretary of Defense did an outstanding job the other day in describing the aircraft procurement cuts and the aircraft program that he is going to be recommending to Congress. Obviously, the issue of how many carrier battle groups came up, and apparently there will be some decision made to reduce from 14 to 12 carrier battle groups. I will certainly be interested in hearing the witnesses' views on how that would impact our ability to carry out our present tasks, as tasked by the Joint Chiefs and the President's National Security Adviser.

But I am also concerned very much, Mr. Chairman, about the likelihood of lapsing into the worst of all worlds, which I have discussed on several occasions, and that is proportional cuts implemented in all three services, simply because that inflicts the least pain. In fact, one member of this committee at a previous hearing said how come we're not "doing more to the Navy" in the way of cuts.

I am very deeply concerned, as I know you are, that we still have not developed a coherent strategy and rationale for the structure of the military in this decade. I don't think we should lightly contemplate the reduction of two carrier battle groups without assessing the impact, any more than we should the elimination or diminution of any other weapon system.

I hope that at some point this committee will try to look at the issue of the draconian measures which we are going to be forced to undertake as a result of the budget numbers which we are now seeing in some sort of conceptual form, based on threats, based on missions, roles, and commitments that we have as a military leader in the free world. So far, Mr. Chairman, I am a bit disappointed that we have not had that kind of blueprint for the future, either from within or from without. Thank you, Mr. Chairman.

Senator LEVIN. Thank you, Senator McCain. Senator Cohen.

Senator COHEN. I don't want to pass up an opportunity to add my own congratulations to you, General Pitman. I share the views that have been stated. But, to follow up what Senator McCain has just indicated, there is a brilliant paper that was presented on the Senate floor just a couple of weeks ago, authored by Senator McCain and myself, which I would call to the attention of the Chair. [Laughter.]

Senator COHEN. It has expressed in some detail what Senator McCain is talking about, in terms of trying to formulate a consensus about the needs for strategy before we deal with numbers.

Right now, we appear to be in a process of a free fall and a kind of rush to come out with the lowest possible, politically popular, number between the House Budget Committee and the Senate Budget Committee without regard to the actual needs. There is also a notion that we ought to adopt what I would call a "Gramm-Rudman-Hollings across-the-board reduction mentality" that is spreading through various parts of the Senate. We ought to resist that with every fiber in our beings. We cannot take that kind of approach of ignoring what the strategy ought to be and what the realities are likely to be in terms of future threat and simply say let's just cut it across the board and let the services worry how they are going to carry out their mission. So I want to endorse what Senator McCain has said.

Senator LEVIN. We are grateful to both of you for your thought process on that very critical need, that we do devise a strategy before we adopt some priorities. Our chairman, Senator Nunn, has also done a major effort in that regard, and I think we are all in his debt as well. The point is very well taken. We have to know what our goals are, our strategies are, our needs are, before we decide what our budget numbers are and where we are going to make cuts. It is a very important point and I think we all take it seriously. We will now turn to you, Admiral. Please begin.

STATEMENT OF VICE ADM. R.M. DUNLEAVY, USN, ASSISTANT CHIEF OF NAVAL OPERATIONS (AIR WARFARE), DEPARTMENT OF THE NAVY; ACCOMPANIED BY LT. GEN. CHARLES H. PITMAN, USMC, DEPUTY CHIEF OF STAFF FOR AVIATION, U.S. MARINE CORPS; AND VICE ADM. RICHARD C. GENTZ, USN, COMMANDER, NAVAL AIR SYSTEMS COMMAND

Admiral DUNLEAVY. Yes, sir. I will take about 10 minutes, maybe 15 minutes maximum, to show you how we go through our process. At this time I ask that my full statement be included in the record. When I say "we," I mean the Navy and the Marine Corps, especially Navy and Marine aviation, "naval aviation," how we go through the decision process, how we decide what we need, how we look at it.

1995 GEOSTRATEGIC ENVIRONMENT

- WORLD MORE LIKE 1914 THAN COLD WAR ERA
- STRATEGIC DETERRENCE PREEMINENT, BUT SUSTAINABLE AT LOWER LEVELS
- POTENTIAL FOR SUPERPOWER CONFLICT DIMINISHED
- SOVIET MILITARY IN FLUX: NAVAL CAPABILITIES REMAIN
- PROLIFERATION OF NUCLEAR, CHEMICAL, HIGH TECH WEAPONRY
- NECESSITY FOR GLOBAL U.S. MILITARY CAPABILITIES/PRESENCE ENDURES

To begin with, we do realize there has been a change in the world. What has gone on critically for about the last 9 or 10 months actually evolved in the last 2 to 5 months.

When you look at the chart, we all agree that strategic deterrence is one of those key points that has kept the peace in the world for the last 45 years. It is going to continue to be a requirement.

On the other side of the coin, you have this potential for superpower conflict being somewhat diminished, but the capability is still there. You are going to have the conventional weaponry becoming more and more important because we are becoming a sort of multipolar power structure in the world, and less a bipolar one. There has been nationalism and fanaticism across the board, and it is going to become more and more prevalent, as we see it, as the world moves into the 1995 time period.

There is proliferation of nuclear, chemical, and biological weaponry. I won't give you the numbers. You have all heard them in the intelligence briefings. This concerns us a lot. So we still say there is a global requirement for the Navy-Marine Corps team, especially the amphibious battle groups, and the carrier battle groups. We can talk about numbers later on.

ENDURING MILITARY ROLES OF THE UNITED STATES

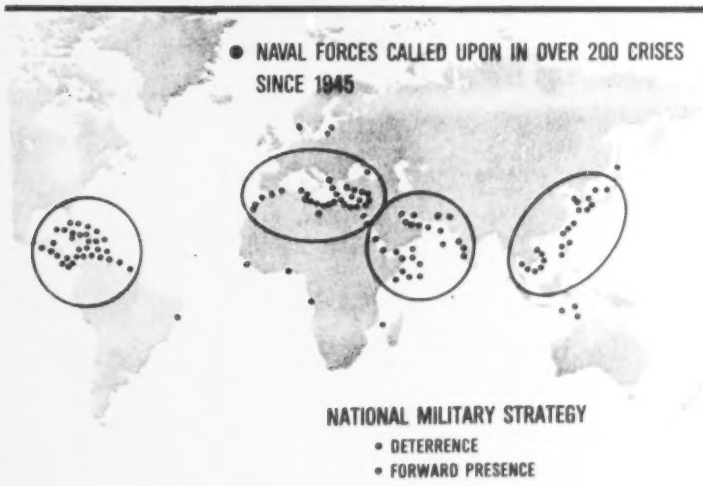
- STRATEGIC DETERRENCE
- PROTECT FLOW OF COMMERCE, ENERGY, RAW MATERIALS
- NOT CEDE REGIONAL INFLUENCE BY DEFAULT
- POSSESS CREDIBLE MEANS TO:
  - PROMOTE REGIONAL STABILITY
  - SUPPORT FOREIGN POLICY
  - DEFEND INTERESTS/CITIZENS ABROAD
  - SUPPORT ALLIES/DETER ADVERSARIES
  - DEFUSE CRISIS/CONTAIN CONFLICT
  - CONDUCT SUSTAINED COMBAT OPERATIONS ACROSS SPECTRUM OF CONFLICT

Here are the requirements, as we see them. Again, because we are a maritime nation, we import the vast majority of our raw materials. We have to keep our sea lines of communication open. If we don't have the ability to deploy, we may be ceding some of our influence around the world in key places that we feel are critical areas for the United States.

Again, here is the thing that the mobile forces, the Navy and the Marine Corps, give you across the board. I don't care where you look at them around the world. The Navy-Marine Corps team is an enduring requirement that we have across the board, around the world.

WHERE WE MUST BE

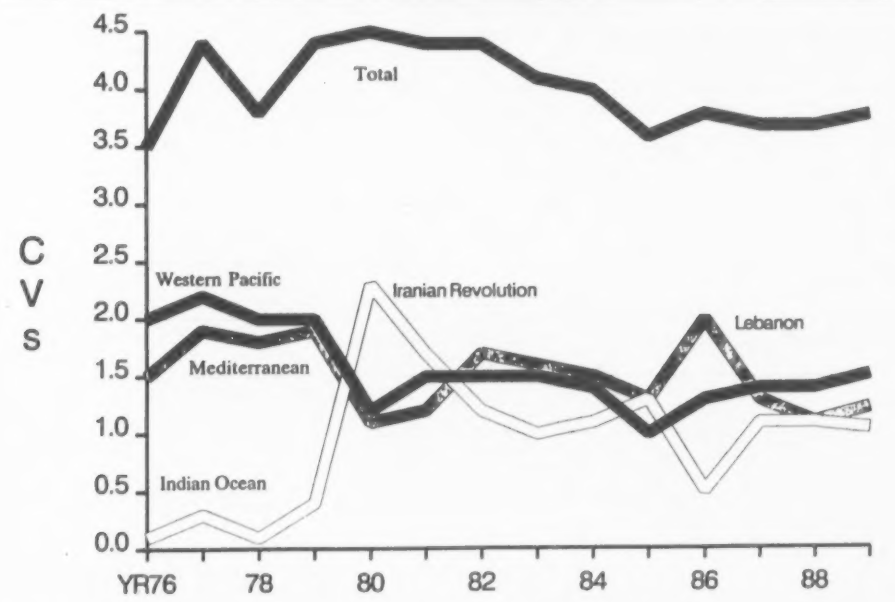
POLITICAL/ECONOMIC ZONES OF INTEREST = DEPLOYMENT HUBS



Here is what we have been doing for the last 20 years. These areas that we go to on a regular basis will continue to be, into the future, those hubs or ports where we feel, as professional military people, we will be called upon to deploy. You have heard the numbers before. In the 200 or 250 times of crisis response that we have had conflict, the Navy-Marine Corps team has answered. Again, our presence holds the conflict down or contains it. I think it is less than 20 times out of the 200 that ground conflict actually happened.

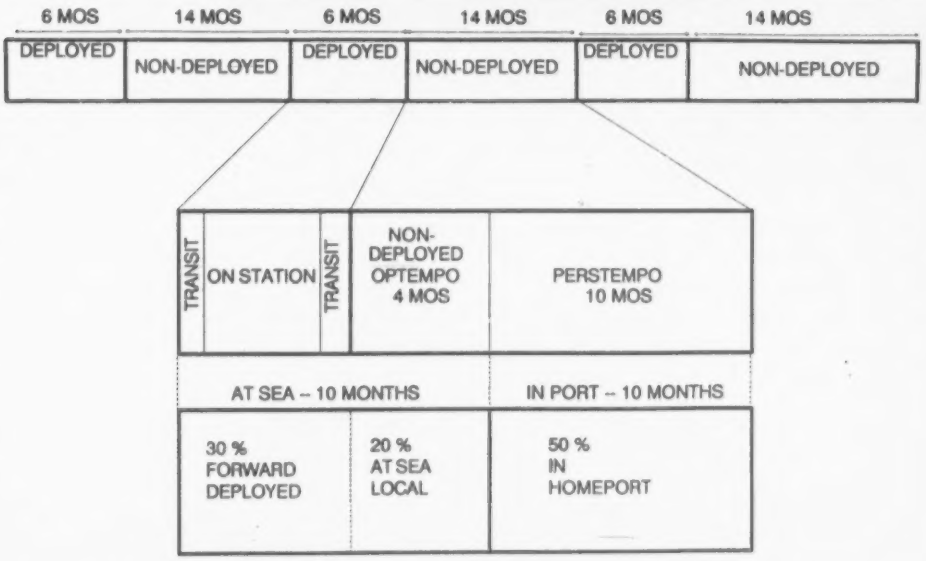
So, again, it is our ability to be there, on-station, in view. With the Senate, Congress, and the White House calling upon us to deploy, the Navy-Marine Corps, a carrier battle group, an amphibious ready group, to put these together and deploy to these sites on a regular basis, and we are there.

CARRIER DEPLOYMENTS
AVERAGE–4.0



What is our structure? Here are the carrier deployments around the world for the last 20 years. That is the way it stands. We are averaging right around somewhere between four and five deployed across the board. It gives us flexibility to exchange weapons, to change the weapon systems, to change the deployment schedule, to be at the threat, the highest threat, with the greatest number of war fighters, the greatest number of combatants, and to do the job, either by sailing by or going and locating the proper site and, when necessary, putting bombs on targets.

TYPICAL CARRIER EMPLOYMENT



Here is the critical thing, where it comes down to how you structure the force and how you train it. I'm going to use the vernacular of my home town of Boston, Massachusetts. This here, on station, deployment time, is the Boston Red Socks winning the World Series, the Boston Celtics winning the World Championship, and the Patriots winning the Super Bowl all at once. This (indicating) is it. Now, in order to do this, in order to win all of those championships, they need this (indicating) to get it done. This is where you train this team, this team of aviators, this Navy-Marine Corps team, this amphibious group, and the carrier battle group, because during this iteration of training, the turnover of people is about one-third.

Fresh blood comes in and we have to train them. It takes time to train them, just like training in football or whatever sport you want to play. Ours is a difficult sport. It is a sport that has deadly consequences if you are not trained right, and it takes that (indicating) amount of time to produce that (indicating) deployment. It is a long time. You can see that. This shows a period of 5 years in the carrier cycle, and you can see how many iterations we go through in order to maintain that presence and yet have the ability to put bombs on target and missiles up tailpipes every time we are asked. Sometimes we aren't asked. But you do influence events by being there, on station, ready to inflict the pain or just to show the flag.

What happens during this time? We have to give the people in the squadron, aboard the ships, in the platoons time to be at home. The last 5 years, through the efforts of the Secretary of Defense, the CNO, and the Secretary of the Navy, we have held to the 6-

month time period for the cruise, alternating with a period of 1-year homeporting with the folks at home.

What does that mean? For a carrier air wing, that means when they are home at Oceana or Cecil Field on the East Coast, or Miramar or Lemoore on the West Coast, sometimes in that training cycle, for about a 3-week period, they are going to deploy to Fallon, Nevada to train, to get in the best training environment we have in the Navy today for air-to-air and air-to-mud combat.

Another part of the time, some of the fellows in the air wing also go down to Guantanamo Bay, Cuba, or Key West, Florida, or Puerto Rico, and fly drug interdictions. So all of this time they are away from home is time in sea duty that they are away. That is why we have to have a balance between deployments, time at home and time with family. A critical thing that a lot of people often don't take the time to figure out is the people impact when moving people around the world, changing duty stations, training them, and keeping them the sharp war-fighters that they are.

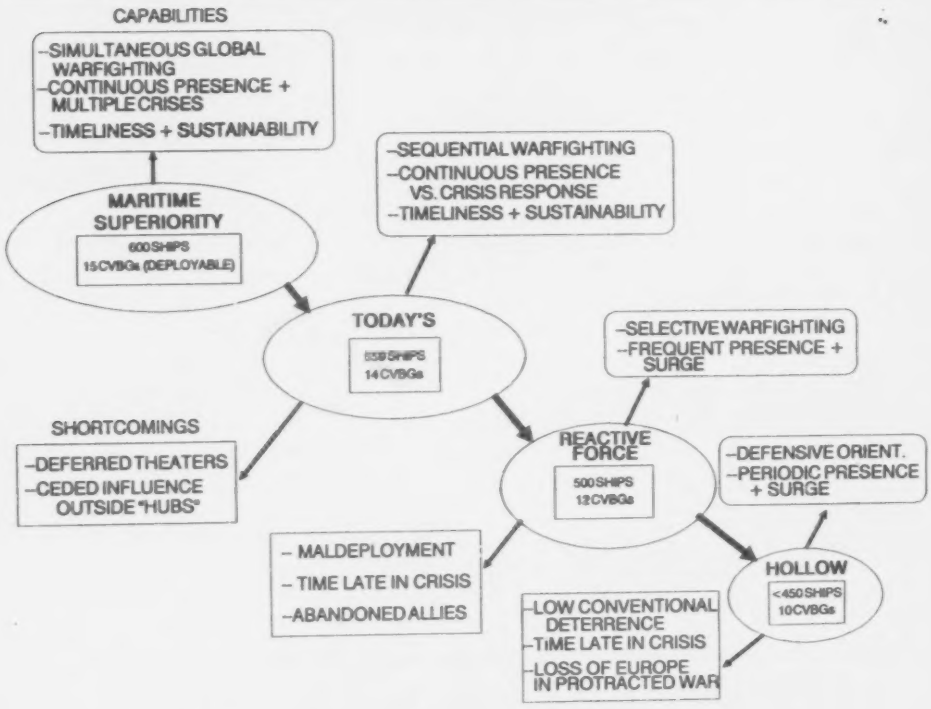
CARRIER FORCE REQUIREMENTS
(CONTINUOUS PEACETIME PRESENCE)

Theater		Force Required
Mediterranean Sea		5.0
Western Pacific		1.7
Indian Ocean	+	7.6
		14.3
	-	SLEP CV
		13.3 "deployable" CVs

* Caribbean Sea presence covered in inter-deployment period.

These are the carrier force requirements. If you do the mathematics, it comes out to meeting those commitments requires about, we say, 15 carrier groups. Because of affordability, today it is 14 carrier groups. That is what we are looking at right now, those requirements in these oceans, the Caribbean, Mediterranean, Western Pacific, and Indian Ocean. It takes that much time (indicating) to do the job right and still give our sailors and marines some kind of home-life.

WHAT TYPE OF NAVY



It is all critical, because if you go back to the 9-month cruise, such as those Senator McCain probably had in his day, our retention starts going back down again. We can't afford that. The 6-month cruises people can handle and on an almost regular basis. But if you go back to a longer period, say 7 or 9 months, we have a retention problem.

This chart is a key chart. You have seen it before, but I would like to go over it again. As both Senator Cohen and Senator McCain have asked, what is going to happen if you come down? It is our professional opinion that this is what happens. Up here (indicating), which is what we should have if we are going to have all the wealth in the world and all the requirements are met, but it is an unrealistic goal in this time of fiscal constraint.

Here (indicating) is what we wanted a few years ago. This is the 600-ship Navy. It gives you the ability to do simultaneous warfare around the world. It gives you a continuous presence. It gives you all of these (indicating) great capabilities with timeliness and sustainability.

Now, today, we are moving down here (indicating) to the 14 carrier battle groups. You still have the same advantages, but slightly less. Here (indicating) you lose. You can't be everywhere you want to be. You may be away from critical happenings, such as the Achille Lauro. If we didn't have a carrier battle group stationed in the Mediterranean at that critical time, we couldn't have confront-

ed those hijackers the way we did. Again, it is being at the right place at the right time.

Here, today, we are starting to lose that because some time we are going to have a vacancy, with no carrier in an important place where we want it.

If we come down (indicating), as has been alluded to in the press or stated at other times, to 12 carrier battle groups, then you are coming down for a maldeployment. You are not going to be able to cover the waterfront.

Some people say bring everybody home and have them off the coasts. But they can't be deployed quickly enough; you can't be ready to rescue the hostages if called upon; you can't be ready to inflict pain on somebody who is causing us trouble; you can't be there to stand by, if needed, and show the flag.

The beauty of the carrier battle group and the amphibious group is the ability to be there and do exactly what you want at a moment's notice, in just a few hours.

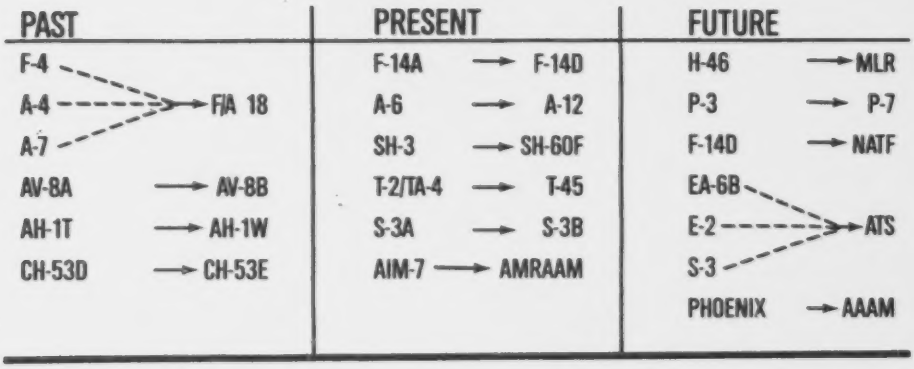
If you go down here (indicating), below 12, you are becoming a very hollow force. Here is what you would lose (indicating)—those critical items that you want to have as a national and an international power.

FORCE STRUCTURE

- QUALITY PEOPLE
- 14 DEPLOYABLE CARRIERS
- CARRIER AIR WINGS: 13 ACTIVE, 2 RESERVE
- MARINE AIR WINGS: 3 ACTIVE, 1 RESERVE
- SEA-BASED HELICOPTERS
- LAND-BASED ASW AND SUPPORT AIRCRAFT
- SHORE AND TRAINING ESTABLISHMENTS

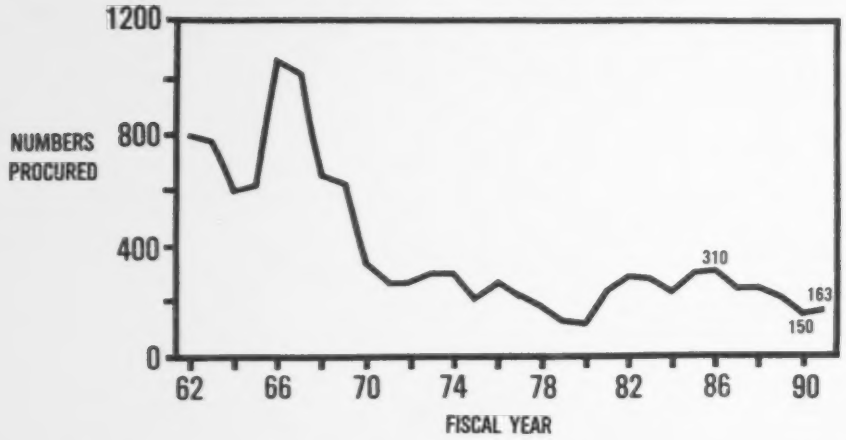
Today, this is what we have. Today, in the critical areas of the Navy, we have great people, the best people I've ever seen. I'm talking about the Navy and Marine Corps, especially naval aviation. We have quality people across the board. The carriers are ready to deploy, and are in great shape. We have less casualties being reported, and everything works aboard the ship the way we want it to work. The air wings are well maintained. They have fantastic capability, and industry has given us first class work across the board. Our carrier air wings, we have 13 Active and two Reserve wings; the Marine air wings in top readiness. So what you have is a great, credible force, well balanced, to do the job you want us to do in a combat situation, both at sea and shore.

MODERNIZATION



The modernization we have done in the past, how we have moved from older aircraft to new, from older systems to newer weapons systems, are shown here. Today, with the budget you have given us in past years, you can see that here (indicating) and here (indicating) is what we want to do in the future. We want to continue necking down, we want to continue having the best possible systems with a fiscally responsible budget that we can have. We can work through you and Congress to come up with these kinds of weapon systems in order to be able to answer the mail that you want us to.

NAVY AIRCRAFT PROCUREMENT



This is the last item and this is the last chart. It really shows you how over a period of years we have come down in our procurement, with the one slight bump that you see there. We are down below 200 aircraft a year now as a buy. We cannot sustain this for too much longer because we will really start to hurt in our ability to answer the mail.

I will ask for your help in getting us back up to meeting our requirements across the board. I don't care if it is helos, maritime patrol, or tactical air. We have to have a balance to fight the wars that we may be involved in or just to show the flag.

Again, it is Navy and Marine Corps but naval aviation is what I am talking about. It is a balanced force. It requires us to answer the mail with a 14 carrier battle group, to be able to deploy on time, to be there, and yet keep a balance of time at home for the folks so the sailors can go to sea. They need a family life, as I have said.

Now we are ready for your questions. Thank you.

[The prepared statement of Admiral Dunleavy follows:]

STATEMENT OF

VICE ADMIRAL RICHARD M. DUNLEAVY

ASSISTANT CHIEF OF NAVAL OPERATIONS

(AIR WARFARE)

INTRODUCTION

Mr. Chairman and distinguished members of the subcommittee, I appreciate your invitation to present the Department of the Navy's plans for aircraft procurement for Fiscal Year 1991 and to update you on the significant programs which influence Naval Aviation's contribution to the military strategy of the United States.

BUDGET OVERVIEW

As we start the 1990s, Naval Aviation is embarking upon a critical modernization program necessary for the United States Navy to meets its global national security commitments into the 21st Century. The President's budget responds to this requirement in a measured and fiscally responsible manner.

The Aircraft Procurement, Navy (APN) request for FY 1991 is $9,839 million, an increase of $541 million over the level appropriated in FY 1990. By comparison, our FY 1991 request under the January 1989 Reagan budget of $11,369 million was $1,530 million higher. The decrease recognizes the fiscal realities we face. Production programs (A-6, P-3) were terminated in earlier years in anticipation of urgently needed replacement programs now in the President's FY 1991 request. These include the A-12, T-45, P-7A advance procurement, and remanufacturing F-14D and EA-6B aircraft to achieve modernization. The requested funds will procure 163 new and 15 remanufactured aircraft in FY 1991. These procurement levels, constrained by budget realities, will move toward alleviating long-standing Congressional concerns on naval aircraft shortfalls and aircraft modernization--although at a slower rate than previously anticipated.

NAVAL AVIATION AND NATIONAL DEFENSE

As a maritime nation and the leader of the free world, the United States is, of necessity, deeply committed to sea power for economic vitality and political stability. Globally, naval forces are the most visible reminder to our allies, friends and adversaries, of the United States' resolve to provide an umbrella of stability under which free world political and economic activity can flourish especially in these most fascinating yet turbulent times. The mobile and flexible forces of the Navy and Marine Corps contribute to global stability through their ability to confront potential aggressors and trouble makers with a broad range of military options--broad in geographic impact and capable of rapid response and measured intensity. Our Carrier Battle Groups and Marine Air Ground Task Forces will continue to be the most responsive, flexible and best prepared force, capable of reacting immediately, on a global or regional basis, from presence and low-intensity conflict through the entire spectrum of conflict.

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Our nation's diminishing access to foreign bases and overflight rights will limit forward basing and operation of U. S. military forces. Our leadership will increasingly rely upon flexible and mobile naval forces to fill this vacuum in deterring adventurism and providing for regional stability. The untethered capability afforded by our naval forces allows for an enlarged role in supporting national counternarcotics operations and a leading role in detecting and monitoring the aerial and maritime transit of illegal drugs into the United States.

Carrier Battle Groups operate daily as they would in conflict--forward, with our allies, and near where potential adversaries must be deterred. Carrier Battle Groups operate worldwide with forces of our sister services and allies in maintaining necessary levels of readiness and training, not only to deter conflict but to fight and win, should deterrence fail. We exercise Naval Aviation in the environment and geographical areas in which confrontation would most likely occur. Carrier Battle Groups with long range, modern, air arms can deploy for as long as necessary and fight at whatever level of conflict the situation demands. Naval forces can affect world events quickly and decisively, and once political or military objectives are realized, rapidly withdraw without leaving a ripple in the water.

Carrier-based aircraft, in conjunction with shore-based maritime patrol aircraft, provide controlled mobility and flexibility with global reach. Air power adds speed and additional reach in a multi-dimensional (surface, subsurface, land, air) warfighting environment. Carrier aviation can conduct offensive and survivable operations against targets ashore, afloat, or under the sea with the capability of rapid revisit. The ability of carrier-based aviation to employ the vast array of sensors and weapons required for successful antisubmarine and electronic warfare makes for unmatched flexibility. This concentrated offensive and survivable air power is an effective and highly visible deterrent which operates freely, independent of foreign shore bases, political constraints and the sovereign claims of other nations.

Unmanned air vehicles, cruise missiles, and other systems will develop as complements to air power at sea, but none will take the place of aircraft where precision and man in the loop targeting is critical. When it becomes necessary to wrest and maintain air dominance over a battle space, when a quick, decisive strike is called for on short notice, when it becomes necessary to deliver heavy volumes of ordnance on a repetitive basis, when it becomes necessary to combat high speed, multi-threat and versatile undersea forces, there is no substitute for air power at sea.

For the present, our technological edge, better training, tactical initiatives and innovations, combined with the exceptional quality of our people, have given us the advantage. Because potential adversaries, especially in the Third World, are fielding improved and sophisticated weapon systems in every category, there is justification for Naval Aviation to modernize in a balanced manner to maintain an effective combat capability within the limits of affordability as proposed in this budget.

NAVAL AVIATION PRIORITIES/ISSUES

The FY 1991 budget request will keep strong and flexible Naval Aviation forces on-station and fully ready to meet any commitment. Our top priorities are people, readiness, safety,

and modernization for a balanced force structure.

People Programs. Maintaining adequate levels of motivated and well-trained personnel to man Naval Aviation is my highest priority. They are the heart of our capability, now and especially for the future. The American white hat and junior officer are the ultimate force multiplier over any potential adversary; however, only well-trained and motivated personnel can maximize the use of the sophisticated weapons needed to wage modern warfare. We must continue to preserve the pilot training rate, the flying hour program, and technical training programs in order to meet commitments and retain our best people.

Our FY 1991 budget request reflects the FY 1990 ship and squadron manpower at the 90 percent level, with zero growth in shore-based billets. Additionally, movement toward a better balance of sea duty tours and shore duty assignments has been delayed. If further manpower reductions are mandated, our ability to bring new weapon systems on line safely, efficiently, and effectively and maintain our perstempo goals, will be constrained.

In an environment where manpower is stretched thin, retention has historically suffered. Retention of experienced officers and petty officers is fundamental to readiness, economy and safety. Experienced personnel maintain and operate complex weapon systems more effectively, resulting in improved readiness and safety. Retention reduces training cost. In the case of pilots, these costs are dramatic; it costs up to $1.25 million to train a fleet-ready carrier aviator.

Our recent experience indicates the Aviation Continuation Pay (ACP) Program, complemented by the recent increase in Aviation Career Incentive Pay (ACIP,, appears to be successful; however, it is too early to assess the impact of ACP and ACIP increases on aviator retention. If additional incentives are required for the nation to retain the proper number of aviators in the Naval service, we will request them.

Growth in high tech industry means our well-trained officers and petty officers are highly sought after in the civilian sector. The Department of Education estimates the number of male college graduates nationwide in 1990 will decrease by 3 percent over 1986 levels making increased recruiting difficult. It is absolutely necessary that military salaries and benefits remain competitive.

Readiness. Readiness must be maintained for maximum sustained warfighting capability. It is penny wise and pound foolish to reduce short-term readiness. Naval Aviation, the essential component of American sea power, must remain capable of keeping conflicts small in geography, time and intensity to avoid escalation. Today, forces on station are ready. This was demonstrated when Iranian warships and gunboats were put out of action in April 1988, when two attacking Libyan MIGs were downed in January 1989, and when responding to the natural disasters of Hurricane Hugo and the San Francisco earthquake. Increased use of Naval Aviation in the fight against illegal drugs is a mission which we take seriously. We strongly support that effort and attempt to maximize readiness and training opportunities afforded by that mission.

To ensure our crews remain ready, the President's budget will keep flying hours at the minimum standards required for safety and readiness. It will provide required training for aircrews at rates needed to maintain squadron readiness. It will provide

for shore-based support infrastructure which protects the material readiness of carriers and aircraft while emphasizing safety, reliability, and maintainability in operations.

Balanced Forces. We must continue to provide a balanced Naval Aviation force structure which is optimized and modernized across all mission areas. The current fiscally constrained force structure of 14 deployable Carrier Battle Groups, 13 active and 2 reserve carrier airwings, three active and one reserve Marine Corps airwings, and the requisite number of maritime patrol squadrons and ASW helicopters provide the warfighting capability to execute the CINCs' war plans.

Modernization. Naval Aviation's modernization plan is both evolutionary (F-14D, EA-6B ADVCAP, S-3B, E-2C, AV-8B Night Attack) and revolutionary (A-12, ATS, NATF), applying the latest technology to achieve superiority and survivability against sophisticated threats. We will capitalize on what Naval Aviation does best while integrating the strengths of sister services and allies. We will increasingly develop standoff weapons and electronic warfare systems as force multipliers. Through commonality and modular design, Naval Aviation will continue to consolidate the number of different aircraft and weapon types to save manpower and support costs.

Safety. Naval Aviation has just completed its second safest year in history. Our latest update shows the calendar year 1989 rate was 2.46 mishaps per 100,000 flight hours with 55 Class A mishaps. This compares to 1988's record low rate of 2.16 and 46 mishaps. Continued command leadership and proactive awareness at the operator level is a proven method toward ensuring safe and successful conduct of operations in our inherently hazardous profession. Our success is due to the cumulative effects of adequate flight hours and spare parts funding in past years which facilitated aircrew training. But we are not content to rest with low mishap rates. We still had 55 too many mishaps.

FORCE MODERNIZATION AND STRUCTURE

It is essential to gain maximum benefit from each budget dollar; therefore, improvements and added capability are limited to only those necessary to improve safety, meet operational requirements, extend service life, enhance survivability, and improve maintainability through reduced costs and lower manpower requirements. Maximum competition, block upgrades, optimum use of acquisition streamlining, maximum standardization and commonality, remanufacturing in lieu of procurement and Weapon System Improvement Programs (WSIP) are all being used to ensure scarce resources are wisely allocated. We are participating, whenever possible, in joint-service development programs. For example, Navy is firmly committed to joint demonstration and validation of the Navy variant of the Air Force's ATF.

Aircraft Carriers. Last year's decision to maintain 14 deployable Carrier Battle Groups was based on affordability and considered a prudent risk to support our peacetime deployment commitments. The long range management plan encompasses new construction, complex overhauls (COH), nuclear refuelings, and Service Life Extension Program (SLEP). When USS ABRAHAM LINCOLN (CVN-72) joined the fleet in November 1989, the USS CORAL SEA, our "Ageless Warrior," had completed her final deployment and was decommissioned on 30 April 1990.

USS MIDWAY continues to operate in the Western Pacific, fulfilling the nation's commitments to our allies and assisting in our necessary Indian Ocean presence. The Secretary of Defense recently announced that USS INDEPENDENCE (CV-62) will replace MIDWAY in FY 1992, which maintains our presence in support of our Pacific Rim partners.

The nuclear refueling and complex overhaul of USS ENTERPRISE, which begins in 1991, is a smart business decision which will ensure a front-line nuclear aircraft carrier (CVN) for an additional 20 years at a reduced cost compared to a new construction replacement.

Carrier Airwings. The Navy's requirement for 13 active and two reserve airwings supports our current 14 deployable carriers. Our two reserve carrier airwings continue to modernize and are readily available in case of national crisis.

Strike Aircraft. The A-12 is a revolutionary concept which will improve our all-weather attack capability by orders of magnitude. As Naval Aviation's top warfighting priority, it will become the primary strike platform of the Carrier Battle Groups and provide a quantum improvement in survivability and operational effectiveness over the A-6. This vital tactical platform will be able to penetrate even the most heavily defended enemy areas to reach its targets. The A-12 is a tactical aircraft of strategic value, a high leverage platform across multiple mission areas. The Air Force has joined us in the development of the A-12 and is defining a variant for their use.

Until all medium attack squadrons are A-12 equipped, we will continue to operate the long range, all-weather, A-6 Intruder. As an interim measure to ensure its survivability in the near term, we are modifying the A-6 under the System/Weapon Integration Program (SWIP). SWIP and block upgrades will permit a greater stand-off capability and reasonable survivability with HARM, HARPOON, Infrared and Laser MAVERICKS, SKIPPER and SLAM (HARPOON variant), and various reliability, maintainability, and survivability (Integrated Defensive Avionics Programs (IDAP)) improvements.

The F/A-18 strike fighter with its versatility, reliability, and survivability will be the workhorse of carrier air wings well into the 21st Century. Upgrades to the radar, engines, weapon system, and "under the weather" capability will further expand mission potential. We are actively pursuing some of these upgrades with our allies to potentially reduce development costs. The FY 1991 request is for 66 aircraft.

The AV-8B Harrier program has been restructured over the past several years to represent a solid balance between fiscal resources and requirements. Operational experience with the AV-8B has shown the airframe to be reliable, maintainable, and capable of substantial growth. Night attack capability, an upgraded engine, and perhaps a NATO cooperative radar in the future will allow the AV-8B to more effectively accomplish its missions over a broad spectrum of operational and threat scenarios.

Amphibious Forces. The V-22 Osprey was terminated in the Revised FY 1990/91 budget. The FY 1991 budget submission contains initial funding to upgrade our medium lift capabilities relative to those inherent in the current force of CH-46s. In response to Congressional direction, the Institute for Defense Analysis (IDA) is conducting an independent Cost and Operational

Effectiveness Analysis (COEA) on V-22 alternatives to satisfy the over-the-horizon medium lift assault requirements (MLR) for the Marine Corps.

ASW Aircraft. Naval Aviation is a key element in antisubmarine warfare (ASW), the Navy's number one warfighting priority. The Soviet Union's numerical superiority in submarines requires the use of Naval Aviation as a force multiplier in the form of sea-based antisubmarine aircraft and land-based maritime patrol aircraft, specifically designed for the primary mission of dominating enemy submarine forces. ASW aircraft, such as the S-3B, SH-60B/F, and P-3C, are the key to effective, coordinated ASW linking surface, subsurface and air elements through an increasingly sophisticated communications network. ASW aircraft are highly responsive, rapidly redeployable weapons platforms possessing the capability of simultaneous track and attack of multiple targets. They can quickly reposition sensors and respond rapidly to long range ASW cues for either successful prosecution or false target elimination. Additionally, aircraft can provide the frequently decisive element of battle--surprise. Our procurement plan is in concert with the ASW Master Plan.

The P-7A Maritime Patrol Aircraft (MPA), formerly called the Long Range Air ASW Capability Aircraft (LRAACA), equipped with the Update IV avionics system, is the planned replacement for our aging P-3s. As we intend with all modernization efforts, the P-7 will be less manpower intensive and more economical to operate. The P-7 will provide much greater payload, longer range, higher transit speed, and survivability improvements which enhance all MPA mission areas, ASW, ASUW, long range surveillance and over the horizon targeting. Recent contractor announcements concerning the P-7 program are currently under assessment. We are pressing ahead in P-3C modifications by requesting funding needed to meet an increasingly sophisticated submarine threat through avionics system upgrades.

We are continuing to procure modernization kits for the S-3B WSIP. During its first operational commitments, the S-3B was highly effective and demonstrated excellence in all mission areas, clearly attesting to the benefits of a successful modification program. With the important role the aircraft now plays in the EW, ASUW, and airborne tanker roles, in addition to its primary mission of ASW, the S-3B has become a fleet workhorse. Unfortunately, affordability has reduced the rate of S-3B kit procurement and delayed program completion until 1996.

FY 1991 is the first year of the SH-60 multi-year contract approved by the Congress last year. The six SH-60Bs will help fill inventory requirements on LAMPS MARK III ships and the 18 SH-60Fs will allow timely replacement of the carrier-based SH-3s which are reaching the end of their service life. Both programs are on track and performing well. The SH-2 will continue to be modernized to enhance its effectiveness in both the active and Naval Reserve forces.

Air Dominance

The Navy must have the capability to establish dominance over certain ocean areas when needed. Naval Aviation is working in conjunction with other warfare sponsors to implement an Anti-Air Warfare (AAW) Master Plan that provides a fleet-wide assessment of force AAW capabilities vis-a-vis requirements into the early 21st Century. The purpose is to identify methods of making existing systems work best in coordinated operations and to outline RDT&E and procurement priorities for the next several years. In view of the Soviet's Naval Aviation developments at

sea and proliferation of sophisticated technology to Third World countries, the AAW Master Plan provides a roadmap to meet those emerging threats.

Our procurement strategy includes no new F-14D procurement after FY 1990 but continues with the program of remanufacturing F-14A aircraft to the F-14D configuration in FY 1991 along with continued development funding for elements of the Pre-Deployment Update (PDU) program. This approach is the most cost-effective method to achieve an all F-14D force. Twelve conversions are requested in this budget. Incorporating new high performance engines, a state-of-the-art digital radar, and new digital avionics, the F-14D will pace the threat and ensure continued outer air battle superiority to the Carrier Battle Group.

The Navy is working closely with the Air Force and its contractors in demonstrating and validating a carrier-based version of the Advanced Tactical Fighter (ATF) as a follow-on to the F-14D near the turn of the century. The Navy is fully committed to this program.

The F/A-18 continues to fulfill superbly its multimission requirements, including attack, fighter escort and short to mid-range intercept, as F-14 augmentation in the outer air battle. The capability to perform both strike and fighter missions allows the Carrier Battle Group Commander unparalleled flexibility in configuring the Hornet as battle situations change. The digital weapon system of the F/A-18C yields greater combat effectiveness by including the capability for AMRAAM and ASPJ. Development funding requested for the radar upgrade is absolutely essential.

The E-2C weapons system update program continues to be highly successful. Our FY 1991 request for six E-2Cs will continue to satisfy fleet inventory requirements. Wing crack repair programs are on schedule with only 18 aircraft, compared to 26 last year, grounded for wing cracks. All are now in the repair pipeline. Full APN-5 modification funding (APN-5), as requested, will maintain the Navy's plan on track.

Electronic Warfare

As sophisticated electronic technology spreads into the Third World, so must the electronic combat systems supporting tactical air forces and carrier battle groups. The EA-6B remains the primary platform for suppression and degradation of enemy defense systems by tactical jamming and counter-target jamming support for battle groups and Marine Corps forces. Because of affordability, additional EA-6B new procurement was terminated in FY 1990. This will necessitate careful management of our assets until arrival of the Advanced Tactical Surveillance (ATS) System. As a warfighting requirement, the EA-6B will be remanufactured into the Advanced Capability (ADVCAP) configuration starting this year.

The ES-3 modification program continues to progress at an accelerated pace to replace the few remaining EA-3B aircraft. The test article aircraft flew on 7 September 1989.

Advanced Tactical Surveillance (ATS). ATS is being developed to perform the battle management, surveillance, and multi-dimensional warfare missions currently accomplished by aircraft such as the E-2, S-3, and EA-6. An independent study by the Center for Naval Analysis was directed by Congress last year. That concept study is currently in progress. ATS is conceptualized to be a common airframe and engine with mission

specific variants. It is expected to encompass a common baseline avionics architecture which allows the integration and exploitation of a multi-spectrum sensor suite, common signal/data processing hardware and software, standard DOD data bus structure and reconfigurable controls and displays.

Training. As Naval Aviation fields the most sophisticated and capable weapon systems in history, training for both the operator and maintainer becomes even more important. Training gives us the edge in readiness for combat. Training includes flight hours, classrooms, training support equipment, facilities and targets, adversary aircraft, simulators, training devices and adequate Temporary Additional Duty (TAD) funding to accomplish available training. Technology now allows simulators which replicate both real world threats and our own weapon system capabilities. The initial training in the operation and maintenance of complex weapon systems is best and most economically conducted first in simulators. It is absolutely essential that training devices and simulators be funded parallel with new aircraft systems and modifications and that they arrive before the delivery of the first aircraft or modification, not after.

The T-45 Training System, and I stress system, consists of the T-45A "Goshawk" jet trainer, state-of-the-art visual and instrument simulators, computer based training integration system (TIS), computer aided instructional devices, academics, courseware, and contractor logistics and maintenance support.

The first two flight test aircraft were accepted by the Navy in 1988 and were used for initial operational and developmental flight testing during November 1988. During this initial flight testing, deficiencies were discovered in lateral and longitudinal stability, engine response and total engine thrust, speed brake operation, and several ergonomic factors. We are working closely with the contractor, McDonnell Douglas, in designing and testing appropriate fixes. Improvements in all areas have been noted by both contractor and Navy test pilots. A slip in Initial Operational Capability (IOC) of September 1990 is likely, but I do not see a major impact on the ability to meet pilot training requirements.

Aircraft Modifications. The FY 1991 request is $1,135 million and reflects the funding for installation of aircraft modifications on a full-funding basis in accordance with the policy change directed in the FY 1990 Appropriations Act. Modernization, as reflected in the APN-5 account, provides us with the safety, reliability, enhanced warfighting improvements critical to force modernization.

Aviation Support Equipment

Our request for support equipment in FY 1991 is only slightly increased over the amount appropriated last year. The appropriations provided from FY 1984 through FY 1988 have been dedicated to fully outfitting our deployable carriers. Full funding as requested in FY 1991 is needed to provide continued support of Consolidated Automated Support System (CASS) production, CV replenishments, required support equipment for aircraft procurement, and the replacement of obsolete equipment. CASS development is on schedule and will complete FSED this fiscal year and is essential for the support of the A-12 and all future aircraft and avionic systems. CASS offers a significant savings in manpower, training, support equipment, operating cost, space, and combat readiness.

READINESS AND SUSTAINABILITY

The FY 1991 budget is balanced to sustain the high state of day-to-day readiness required by Naval Aviation tactical forces through prudent investments in training, personnel, and material support programs.

Flying Hours - An Imperative for Fleet Readiness. The standard readiness indicator for the flying hour program is the primary mission readiness (PMR) attained by warfighting units (TACAIR/ASW). For each type aircraft, a pilot needs to be trained in various mission skills--skills which must be continually renewed for proficiency. Through experience, we have determined the average number of hours per month required to achieve and maintain these skills and fighting spirit. Our budget development process is designed to identify the minimum funding levels necessary to provide the flight hours to maintain crew readiness. The FY 1991 budget request is sufficient for us to achieve 85 percent of that level through flying and an additional two percent PMR through the use of simulators. The planned 87 percent PMR is short of our peacetime goal of 88 percent. We know that further reductions will result in a loss of readiness, a reduction in safety, and a decline in pilot retention.

The average TACAIR/ASW crew flies 25 hours per month. We believe this reflects the absolute minimum for retention of critical combat flying competence, comfort, and confidence. Air wings preparing for deployment and those already deployed are accorded priority for flight time while those returning receive less. It must be emphasized that the opportunity to fly is critical in the retention of aviators. We are closely monitoring readiness indicators as Naval Aviation's contribution to drug interdiction increases and capitalizing, when possible, on training and readiness opportunities.

Airspace. Another separate, but related, issue is the availability of adequate Special Use Airspace to maintain Naval Aviation readiness. Special Use Airspace is essential for attaining acceptable flight crew proficiency across the full spectrum of warfare, for developing and evaluating airborne tactics, and for testing and evaluating advanced technology aircraft and weapon systems. Low observable and terrain hugging aircraft, high-speed missiles, and over-the-horizon standoff weapon systems and tactics are but a few examples of added capabilities that increase required air and sea space. Continued emphasis on joint operations, while appearing to provide relief, actually places additional demands on airspace size and frequency of use. Available airspace is under increasing pressure from commercial air, economic, political and environmental sources. Each source is represented by special interest groups which compete with military interests. The Navy is faced with the dilemma of requiring increased airspace to support emerging capabilities, while current trends are reducing and restricting available area usage which places readiness at risk. We are seriously working at solving the myriad of attendant problems, but I would much appreciate the Members' understanding of our dilemma.

Aircraft Material Readiness. While many factors, including personnel, training, general logistics support, spare parts, and depot rework funding all affect material readiness, the primary indicator used to measure aircraft material readiness is the Mission Capable (MC) rate. The MC rate goal is 73 percent, which was achieved in FY 1988. Due to fiscal constraints and in order to maintain program balance, funding in areas affecting MC rate have decreased since FY 1987. The result was expected to

be a decline of about one percent per year in the MC rate. The FY 1991 MC rate is projected to be 70 percent which tracks with our projections and is acceptable considering the fiscal and political climate.

Aviation Spares. The FY 1991 aviation spares account has been pared to bare minimum requirements and represents our best efforts at a balanced approach within the limits of affordability. We plan to procure 100 percent of engine spare parts requirement, which directly affect Mission Capable rates. We plan to procure 70 percent of avionics system's repair parts which has a direct affect on Full Mission Capable rates but does not adversely affect Mission Capable Rates. As in recent years, reduced funding for spares will require intensified management efforts that may include increased cannibalizations, additional "crossdecking" of assets, off-ship requisitions, and increased maintenance man hours.

WEAPONS DEVELOPMENT/PROCUREMENT

Power projection is carrying the fight to the enemy and putting ordnance on target. Sufficient quantities of practice ordnance are essential to accomplishment of that objective. Skills must be maintained on a continuous basis during peacetime. Although increased weapons procurement in recent years has all but eliminated the requirement to cross-deck weapons on deploying combatants, we still have not completely filled the resupply pipeline and forward prepositioned inventories of the more sophisticated weapons like HARM and HARPOON. However, we believe the quantities reflected in the FYDP reflect an acceptable risk in this revolutionary and fiscally constrained environment.

Several weapons are worthy of special mention because of their contribution to warfighting enhancements. We are proceeding with the development of the AIM-9R as a top priority. It features an improved capability in clutter and a significant counter - countermeasure capability. As we modernize our air-to-ground capability by increasing our standoff delivery capability, we increase aircrew survivability. Continuing the development of AAAM, AMRAAM, Standoff Land Attack Missile (SLAM) and the Advanced Interdiction Weapon System (AIWS), we are necking down the different types of weapons in the fleet while providing target discrimination with man-in-the-loop capability.

Previous increased Congressional funding for sonobuoys will help meet inventory requirements and future consumption requirements for ASW training while sustaining war reserves. The FY 1991 request has been reduced to the lowest prudent level. Even though expenditure rates may exceed FY 1991 procurement quantities, accumulated inventories will continue to support the ASW operational tempo in the near term, and we accept the balance between associated warfighting risks and available fiscal resources.

Our air-launched training ordnance has been reduced to the absolute minimum with acceptable risk of ordnance delivery readiness. Since readiness typically lags this investment by several years, the full impact of reduced funding is not readily visible. Only one-third of fleet requests for live ordnance training is approved in order to avoid erosion of war reserves. The most optimistic future outlook rests on the Advance Bomb Family (ABF).

SUMMARY

As a maritime nation, sea power is essential to our national objectives. Naval Aviation adds dimensions to sea power that are not available from other means. Naval aircraft provide reach, flexibility, versatility, speed, and concentrated firepower. They are quickly reloadable.

The FY 1991 budget request emphasizes people, readiness to respond, and force modernization which will allow Naval Aviation to continue meeting national commitments. Since 1945, successive presidents during crises and conflicts have always asked, "Where are the carriers?"

People must always remain our top priority. Our people ask for very little. They willingly deploy throughout the world, enduring six-month separations from their families and friends on a routine basis. They do so from a deep sense of commitment and love of country. We must return their commitment and devotion to duty with adequate pay and benefits, and a consistent personnel/ operational tempo. These things are critical to protecting our national investment in a ready Navy.

We must likewise provide sufficient funds to maintain a balanced naval capability centered on at least 14 deployable Carrier Battle Groups. Our Carrier Battle Groups are the centerpiece of our naval capability because they represent the most effective and complete way to establish and maintain control of the seas and, when necessary, project power at sea and ashore. There is no substitute for them in peacetime or conflict. In order to pace the emerging threats of the coming century, we must introduce the technologies represented in new weapons systems, such as the A-12.

Naval Aviation makes extraordinary contributions to national security. The continued support of Congress in protecting our investment in modernization and balanced force structure, coupled with the dedication of our courageous professional Sailors and Marines, will ensure our continued strong contribution and steady course.

Senator LEVIN. Thank you, Admiral. Before we ask questions, we will call on General Pitman for his statement.

General PITMAN. Sir, that covered both Navy and Marine aviation, unless you have specific questions.

Senator LEVIN. Thank you. General, I believe you had a prepared statement. We will make that a part of the record, then.

General PITMAN. Yes, sir. Thank you.

[The prepared statement of General Pitman follows:]

STATEMENT OF

LIEUTENANT GENERAL C. H. PITMAN

UNITED STATES MARINE CORPS

DEPUTY CHIEF OF STAFF FOR AVIATION

Mr. Chairman; Distinguished Members of the Subcommittee:

I am pleased to have this opportunity to discuss Marine Aviation and to present our plan for aircraft procurement for fiscal year 1991. Our request is not ambitious, nor is it austere. It is a balanced program of new procurement and modifications to existing systems designed to meet our operational requirements.

For the past several years, our focus has been to procure systems that were intended to meet the threat of Third World instability, illegal drug trafficking, terrorism, and regional war. The events in the Philippines, the Persian Gulf and Panama have increased the demands on our preparedness and our capability in responding to a broad spectrum of operational scenarios. These events have increased our dependence on precision, surprise, and night operations.

The Commandant of the Marine Corps is steadfast in his requirement for a total force whose elements are complementary in their capability to operate across a broadening spectrum of requirements. The baseline requirements are the 18 missions that are integral to the Marine Expeditionary Units and which, by extension, also apply to larger Marine Air Ground Task Forces (MAGTFs). To achieve that capability in a declining budget, we are modernizing the aircraft in the inventory and replacing those that are incapable of being modernized to meet the threat or to support the missions of our Marine Air Ground Task Forces.

Today, more than ever, our emphasis is on low- to mid-intensity conflict. Successful mission execution depends heavily on mobility, rapid response, bold action, and effective use of

environmental factors such as darkness and weather to our advantage.

The fiscal year 1991 program is designed to continue our progress toward realization of those warfighting goals with balanced modernization and enhancements across all aircraft communities and mission areas. Our contingency planning stresses night and adverse weather operations.

Naval Forces have met our Nation's expeditionary needs throughout our history, and we continue to emphasize the expeditionary capabilities that make our Marine Corps capable of forcible entry and sustained operations ashore at long ranges. Renewed calls for withdrawal of U. S. Forces from overseas bases underscore the increased demand that will be placed on sea-based forward deployed--rather than forward based-- forces.

Although peace may be breaking out in Eastern Europe, events in other parts of the world serve as reminders that the outbreak of peace in one area of the world is not necessarily contagious. The oceans that insulate beleaguered peoples from the peace process are the same oceans that isolate struggling governments from those who are willing to lend assistance. If the peace process is to succeed, Naval forces must maintain the capability to influence the action through judicious application of conventional forces capable of power projection.

The Marine Corps has a hard earned reputation for frugality in maintaining a potent fighting force. For a small portion of the Defense budget, the Marine Corps provides a major contribution to our overall defense. Our aviation program is lean, and there are no frills. It is tailored to meet our minimum requirements in order to execute our missions. But our requirement for resources becomes more acute as we defer needed improvements into the outyears under the mistaken perception that we will get well later. For us, the outyears have arrived. We seek your support in attaining those resources that are essential

to maintain our strength and readiness.

With those thoughts in mind, I would like to address some specific aspects of Marine Corps Aviation's fiscal year 1991 request and to articulate our plans for the future.

ASSAULT MEDIUM LIFT

Although our FY 91 request is modest, this is the most important item in our request. Since 1978 successive Deputy Chiefs of Staff for Aviation have emphasized the need to replace our fleet of CH-46Es and CH-53 A/D helicopters, and that need is more critical now than ever. Our medium assault helicopters are the very heart of Marine Air Ground Task Forces. In maneuver warfare, they provide the vertical dimension to the battlefield and are one of the commander's true maneuver elements. They provide the vast majority of our Marines with the tactical mobility they require on the modern battlefield, while also functioning as primary movers of equipment and logistics support.

We are awaiting the results of the Congressionally mandated Cost and Operational Effectiveness Analysis before we make any decisions on specific aircraft for this critical mission area. We do know, however, that, regardless of the selected alternative, the solution must be a fully capable combat aircraft with state-of-the-art communication, navigation, and defensive systems.

There is a common perception, in some circles, that inexpensive rotorcraft are available today and that these aircraft can fulfill the requirement for military applications. While this perception may have been true in the past, it is no longer the case if the aircraft is designed to be more than just a flying truck. Today's and tomorrow's combat aircraft, fixed wing and rotary wing, will be faced with far more sophisticated adversary systems and increasingly complex missions even in the

Third World and in terrorist encounters. The next generation of medium assault rotorcraft must be capable of operating in the same environment as our fixed wing aircraft, especially at night and in adverse weather. In order to do this, and to survive, our aircraft must have technologically modern systems, including self-contained navigation systems, integrated night cockpits, self-protective armament, and designed-in survivability.

A replacement for our medium assault fleet will be expensive in today's fiscal environment, but we are continuing to reduce the number of type/model/series of aircraft ("neck down") in an effort to keep our overall force affordable. Additionally, we are seeking a solution that will be more than a short-term fix. The technology is at hand that will allow us to develop aircraft and systems that will carry us well into the next century.

Our medium assault replacement will take that fact into account. Upon completion of the on-going COEA, we will take a very close look at candidate systems and assess their combat worthiness, operating costs, manpower impact and potential for enduring service. Experience has very graphically demonstrated that planning for a 20 year service life for our rotorcraft is optimistic. We must give stronger consideration to solutions which will remain viable for the 25 to 30 years that has become the norm.

NIGHT AND ADVERSE WEATHER ENHANCEMENTS

The night belongs to the attacker. This well known dictum of warfare is as true today as at any time in history. For several years, the Marine Corps has been developing systems and equipping aircraft to take advantage of the night. Our approach has been to modify existing airframes to develop an aviation force capable of meeting the requirements of our supported units.

During the last calendar year, we stood up our first AV-8B Night Attack Squadron at Yuma, Arizona. The Night Attack

Harrier incorporates forward looking infrared (FLIR), a moving map display, night vision goggles, a night cockpit and an improved heads up display that allows the pilot to navigate and to locate targets while flying close to the ground. I am confident that the Night Attack Harrier will provide the MAGTF a much needed capability to conduct effective close air support at night, under the weather.

The Night Attack system was developed to provide a much improved capability at reasonable cost. It does not obviate the need for a radar, and we are still optimistic that the radar system will prove an affordable option.

With relatively simple and inexpensive subsystem improvements we can reduce the need to buy new aircraft and extend the life of those in the inventory. This practice has brought us close to where we want to be, and with your continued support these modifications can be completed.

The Night Targeting System (NTS) for the AH-1W Super Cobra is one example. Operationally, NTS expands the capabilities of the AH-1W to provide precise close-in fire support and assault fire suppression 24 hours a day.

The system provides greatly enhanced night operations by incorporating a forward looking infrared sensor with multiple fields of view, a laser target designator, and a laser range finder. It allows nearly autonomous operations for the AH-1W and greatly improves weapons accuracy, while providing pilots with visual cues necessary for earlier target detection and navigation. NTS is also designed to reduce maintenance requirements when compared to our existing system.

NTS is a cooperative program with the Government of Israel, and we are pleased to note that the program is ahead of schedule and under cost. Your support of this vital program, and of the AH-1W program in general, has led to potential Foreign Military Sales to several of our allies.

There are two programs under way to give the F/A-18 a true night/all-weather capability. The first is the upgrade for the APG-65 radar, and the second is the addition of software improvements that will incorporate the Radar Beacon Forward Air Controller (RABFAC) feature which is currently in our A-6Es. RABFAC gives us the all-weather capability to deliver close air support. These programs are particularly important as we transition our all-weather attack squadrons from the A-6E to the F/A-18D.

The Helicopter Night Vision System (HNVS) will provide an integrated night cockpit, forward looking infrared, and an Integrated Helmet and Display Sight System (IHADSS) for the CH-53 series aircraft. HNVS offers a marked improvement over current visual systems and will measurably reduce pilot workload by integrating navigation information with other cues.

Similar modifications are in progress on two of our other assault support aircraft--the C-130 and the OV-10. Due to the higher priority given to upgrading the helicopter fleet these programs are proceeding more slowly than we would like, but we are firmly committed to modernization of these key aircraft.

Technology alone cannot solve all of the problems associated with fighting at night and in adverse weather. Therefore, Marine Aviation is committed to modifying our training and, where necessary, our doctrine in an effort to further enhance our capability. We are seeking hardware solutions only where training cannot overcome our deficiencies. Daylight, fair weather conflict is a high risk proposition in today's sophisticated weapons environment.

READINESS AND SUSTAINABILITY

Some will argue that, with the apparent decline of the Soviet threat, we cannot justify maintaining such a high state of operational readiness as we have in the past. Others will say

that, while the threat level may have decreased, we cannot afford to drop our guard. I must cast my vote with the latter group.

We have found from hard experience that it is much more difficult--and more costly--to regain military capability than it is to maintain it. I do not suggest that we ignore the changing world climate, but we must remain combat ready.

There is little question that, as the Nation reacts to the rapidly changing world situation, some force reductions will be necessary. Whatever occurs, MAGTFs must be in a position to act, rather than react, to any crisis with a fully capable Aviation Combat Element. Unrest in the Third World, persistent terrorism, and the seemingly ever-present scourge of drug trafficking continue to threaten U. S. interests at home and abroad. These factors require that we maintain a high state of readiness.

Our Commandant's emphasis on Special Operations Capable MAGTFs to meet those challenges is stronger than ever. Consequently, the demands of training and the requirement to keep our equipment ready has not diminished. Flying hours for aircrews, steaming hours for ships, spares and repair parts for equipment must be viewed as an investment in capability--not simply as an expenditure of resources.

The potential for conflict--albeit on a smaller scale--still remains. Missions such as the evacuation of embassy staffs, protection of vital facilities, or isolation of forces hostile to a friendly government will require that future missions be carried out with precision. To accomplish these missions, our aircrews need adequate flight time for training, and our maintenance personnel need the parts to repair their equipment.

We are beginning to see the results of earlier decreases in spare parts funding. There has been a slight, but noticeable, decrease in aircraft readiness over the past several years. Much of this downward trend is attributable to a 2.5% increase in the Not Mission Capable, Supply (NMCS) rate.

The problem is worse, of course, for some of our older airframes. In some cases, suppliers have gone out of business. In others, vendors have stopped making specific parts because there isn't enough demand to justify continued production. This situation places an increased demand on some of our depot maintenance activities and has the potential to drive readiness even lower.

Our request is designed to maintain the current level of 25 hours per crew per month, not to spend at increasing rates when the top line is declining. The aircrews who are flying 25 hours per month this year need to fly at the same rate next year if they are to maintain reasonable proficiency. Our request for spares also supports this goal.

ORDNANCE

Another factor in the readiness and training equation is the availability of ordnance, not only for contingency but for training as well. Through your past support we are getting caught up in our non-nuclear ordnance requirement for machine gun ammunition, but there are areas where we are falling farther behind. Shortfalls in some of our missile and rocket programs are in the thousands, and in the case of 2.75" rockets the shortfall is approaching 200,000 rockets.

These inventory shortfalls do not account for training requirements. Although we have made considerable progress in substituting simulator training in lieu of some training ordnance expenditures, it is not necessarily effective to follow a similar practice with all types of ordnance. This is especially true in the case of some of the so-called "dumb" weapons.

Because such weapons are not precision guided, aircrews and ordnance handling personnel must train with live ordnance. It is the only effective way to learn handling, delivery and performance characteristics of these weapons. Our request

reflects a compromise among competing budget priorities and does not fully meet our overall requirement.

AVIATION SAFETY

Although 1989 was the second safest year in Marine Aviation history, we are not satisfied. Our mishap rate last year was 3.52 per 100,000 flight hours, up from 2.68 in 1988. Aircrew error continues to be the single most significant factor in aircraft accidents. Analysis of mishaps over the past several years indicates that many are caused by a breakdown in coordination among crewmembers in multi-piloted aircraft. In response, we have instituted a program to improve aircrew coordination at all levels in the training pipeline.

The program is very similar to that used in the commercial sector to train airline pilots. Although it's too early to measure results, I feel strongly that this dedicated training program will pay big dividends in the future.

New procurement and aircraft modification are also part of the solution. As we continue to develop our special operations capability, and as we increase the degree of difficulty in mission execution, our hardware must be updated to match the requirements levied on the aircrews. I firmly believe that the night/adverse weather enhancements mentioned earlier will have a beneficial impact on our mishap rate by reducing aircrew workload, even under our most demanding mission profiles.

AIRCRAFT PROGRAMS

F/A-18 HORNET. The F/A-18 has proven itself to be an extremely effective multi-mission weapons system. It provides a quantum leap in operational flexibility by incorporating a state of the art air-to-air and air-to-ground capability in a single platform. This increases its mission effectiveness and overall utility while reducing the requirement for dedicated single-

mission aircraft.

We are continuing to develop and refine the expeditionary qualities of the Hornet. Concept development is underway to conduct F/A-18 operations from forward operating bases in much the same manner as the AV-8B. When married up with new, portable arresting gear, the F/A-18 will be capable of operating from expeditionary surfaces less than 2000 feet long. Coupled with its increased operational reliability, the aircraft is capable of increased sortie rates where those sorties are most needed--just behind the front lines.

Although we do not have any F/A-18 squadron's deployed aboard aircraft carriers today, the capability to do so provides additional flexibility and gives us an important link with our Navy squadrons. This interoperability gives the National Command Authority and the CINCs a true force multiplier because it enables them to stage Naval squadrons ashore or augment carrier air wings from shore-based assets.

Following last year's Congressional direction, the Marine Corps began transferring its A-6s to the Navy in anticipation of receiving the F/A-18D. That transition has begun with the introduction of the two-seat variant into the Fleet Refresher Squadron, VMFAT-101. We will deliver aircraft to our first tactical squadron, VMA(AW)-121, during the third quarter of this year.

The Department of the Navy request for 66 F/A-18s in FY 91 includes approximately 25 aircraft for the Marine Corps. Of that number, 12 will be the two-seat D model. With your continued commitment to this program, we will transfer our last squadron of A-6s to the Navy in 1994 and complete our transition to the "D" in 1995.

AV-8B. Fiscal Year 1991 is the last year of a three year multi-year procurement for the Harrier. Your steadfast support of this vital program has maintained Marine aviation's lead in

VSTOL development and operational employment. Completion of the FY 91 program will bring our total procurement to 276 of the 323 aircraft we require for the active force.

I ask your continued support in our program to replace the existing engine with the -408 engine. Progress on the engine test program has been good, and the results are very encouraging. We plan to begin installing the new engines later this year, as aircraft come off the assembly line. We will then retrofit existing aircraft as soon as possible.

The Department of the Navy is conducting negotiations with the Governments of Italy and Spain to explore foreign military sales of a radar equipped variant of the Harrier. The discussions are proceeding, and the prospects look very favorable. When consummated, the agreement will give us the option to forward fit radars into the remainder of our multi-year procurement (MYP) aircraft, as well as any further procurement.

We consider this option extremely important. The AV-8B is the only U. S. tactical fixed wing aircraft produced in the last ten years which does not have a radar. The decision to forego the radar in the early stages of the program was a prudent one at the time, owing to affordability. Now, with routine shipboard deployments, and with increased emphasis on night and adverse weather operations, the radar variant is more important than ever.

CH-53E. The FY 91 request for 23 heavy lift CH-53Es will bring our procurement to date to 135 aircraft, measured against our requirement of 191. The Marine Corps is thoroughly committed to meeting the procurement objective. As the only heavy lift option capable of meeting our operational requirement, the CH-53E has proven to be a vital element of our assault support fleet.

The uncertainty of varying annual quantities has provided us with little bargaining room, and I feel strongly that this system is a prime candidate for multi-year procurement. Such a

plan would almost certainly give us the leverage we need at the bargaining table to reduce the cost of these aircraft.

EA-6B (ADVCAP)/RF-4B. The program to remanufacture and update the EA-6B to meet the current and projected electromagnetic threat is another example of Navy/Marine Corps co-development. The FY-91 request for three aircraft begins the process of modernizing our aging force. Our long-term objective is for one active squadron of 18 aircraft and a reserve squadron of six aircraft.

Unless this program continues, the Marine Corps will be faced with a declining inventory by 1996, through normal attrition. As the only dedicated electronic warfare platform in the Marine Corps' inventory, the EA-6B is absolutely essential to the conduct of operations in the current and future threat environments.

We are continuing to retire our only squadron of RF-4B tactical reconnaissance aircraft. The retirements will be complete by the end of FY 91, and the mission will be assumed by F/A-18s using the Advanced Tactical Aerial Reconnaissance System (ATARS) when that system comes on line.

AH-1W. Although the AH-1 model aircraft has been in operation for over 20 years, the "Whiskey" is, in all respects, a new aircraft with impressive versatility. Your support of this comparatively inexpensive program has provided us with an agile and supportable platform that performs a myriad of assault support missions.

Its ability to employ mission-tailored weapons (TOW, HELLFIRE, SIDEARM, SIDEWINDER, rockets and 20 mm cannon) has piqued the interest of several of our allies. The AH-1W has received considerable interest in the foreign military sales market and has the potential to significantly increase our interoperability with other nations. The addition of the Night

Targeting System will increase that potential even more while providing a significant night fighting improvement.

This program experienced some significant problems a few short years ago, but those problems are behind us. The program has gone from one that was almost inexecutable to one that is now almost 200 days ahead of schedule and gaining.

RESERVE AVIATION

Our Reserve aviation component is healthy and contributes significantly to our overall mission effectiveness. The Reserves train and operate with the active force on a daily basis, both in the U. S. and abroad. Your Marine Corps is committed to ensuring that its Reserve component remains fully effective as an integral part of our total force.

The past year has seen the transition of a Reserve fighter squadron to the F/A-18A at El Toro, California, and the initial standup of our second KC-130T squadron at Stewart International Airport, New York. As a result of your actions last year, the procurement of two more KC-130Ts will continue our efforts toward our goal of two KC-130T squadrons for the Reserves.

The funding provided for six AH-1Ws in the NGRE account will allow us to replace our VietNam era AH-1J, which has no credible anti-armor capability. It will also help us reduce the number of type/model/series aircraft we are required to support. More importantly, continued Reserve modernization will provide us the opportunity to more fully integrate the capabilities of our Reserve force with the active component, streamline our training programs, and enhance the Commandant's commitment to total force compatibility.

COMMAND AND CONTROL

Although our Command and Control systems are not counted in

the APN account, I think that it is important to mention them briefly. The aircraft systems you provide for us through continued appropriation cannot be totally effective without adequate means for command and control. Our programs in this mission area are not growth programs. Our efforts are aimed at replacing obsolete technology with systems that are compatible with the increased sophistication of the aircraft and missiles in today's inventory, while simultaneously increasing our tactical mobility and reducing its footprint.

Many of our programs are carried out with the other services in order to realize the economies associated with cooperative development and to reduce support and operating costs. We also will reap considerable operational benefits by increasing the level of interoperability among the services and with our allies.

PILOT RETENTION

We have a shortage of qualified aviators. We have been able to reduce the severity of this problem through a program of aviator conversions and transitions among aircraft communities and increased productivity in our Fleet Refresher Squadrons. Admittedly, these are short term solutions, so we must continue to explore options to reverse the current trend.

We continue to attract sufficient numbers of qualified applicants. Your efforts to help us achieve a longer range solution through increased compensation and adequate flight time should significantly improve the situation over the course of time.

CONCLUSION

Marine Corps aviation, in the aggregate, is healthy. However, I cannot overemphasize the seriousness of our medium lift shortfall. We are prepared to move out smartly when we have the results of the COEA. This program is our Commandant's, and

my, number one priority.

We are fully cognizant of the fiscal environment that we face, and we understand that not all of our problems can be solved by throwing money at them. The reduction of aircraft type/model/ series has our continued attention and effort.

Naval Aviation remains one of the most flexible, responsive and versatile weapons in the U. S. arsenal. When coupled with its supported forces, Naval Aviation's ability to be anywhere, anytime to carry out U. S. policy is unrivaled. Our presence is a clear signal to our friends and to potential foes that our commitment is strong and enduring. Perhaps more importantly, Naval Aviation can carry out its missions without dependence on host nation support or overflight rights and without the operational encumbrances that often accompany such second party agreements. Yet, if the situation should call for support from shore based facilities, Naval Aviation offers that option as well.

Your Navy and Marine aviation forces have carried the flag to every part of the world, in peace and at war. We remain committed to that challenge today as much as at any time in our Nation's history. We are on station 24 hours a day, every day, and we will be ready whenever the call comes.

12 OR 14 CARRIER BATTLE GROUPS

Senator LEVIN. Last week I believe Secretary Cheney indicated that he still supports the 14 carrier Navy. But it is likely that the number of battle groups will be reduced as a realistic matter. He indicated, for example, that the procurement goal for the A-12 is now based on 12 carrier battle groups and not 14. Admiral Dunleavy, is it your understanding that the revised acquisition goal of the A-12 is now geared to a 12 deployable carrier battle group?

Admiral DUNLEAVY. Secretary Cheney used 12 just as a costing item and a force structure item, as a level. That is what he used in his full aircraft review. As far as we're concerned, the Department of Navy, we are still structured and still funded for 14 carrier battle groups. If we are told to come down to 12 carrier battle groups, we have to have a plan in hand in order to execute that order. But, right now, the guidance is, as was alluded to and stated by both the Secretary of Navy and Secretary of Defense, that 14 carrier battle groups is our goal.

Senator LEVIN. If the guidance is changed to 12 or some other number, when would that happen chronologically?

Admiral DUNLEAVY. I'm not qualified to answer that. They have to tell us to do it.

Senator LEVIN. Is there a decision which is pending in the next few months?

Admiral DUNLEAVY. It's in discussion, Mr. Chairman, and whether or not it's going to be in the next few months, I couldn't tell you.

Senator LEVIN. Are you building your detailed acquisition plans for the A–12 and other aircraft programs based on a presumption of 12 or based on the presumption of 14?

Admiral DUNLEAVY. On a presumption of 14.

Senator LEVIN. That's the presumption that you are using in your detailed acquisition plans for all the aircraft programs?

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. The F–18 fighter procurement objective is based on the Navy having 14 carrier battle groups and the Marine Corps replacing many of its older aircraft with F–18s. If, in fact, the number of deployable carriers is reduced, would the Navy still need to buy 66 F–18s?

Admiral DUNLEAVY. Mr. Chairman, that's another thing we're looking at. If we're told to come down on the number of battle groups, air wings, and carriers, we will have to adjust our figures. That is being looked at right now.

Senator LEVIN. You are looking at that in the event you get new guidance?

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. Will you have your results completed within the next few weeks?

Admiral DUNLEAVY. No, sir.

Senator LEVIN. Even though that guidance may not be forthcoming? Are you going to be ready in case that guidance comes?

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. When will you be ready?

Admiral DUNLEAVY. I couldn't tell you right now, but we have all these options that we're looking at real hard, and I have to go back to the books and press the button. I have a great staff that can give me the answers, once we get our guidance. We have equations that we work, and if we are told to do that, then we have to do it.

Senator LEVIN. So you're going to wait until you get the guidance before you push the button?

Admiral DUNLEAVY. That's a good way of putting it, Mr. Chairman. Yes, sir.

Senator LEVIN. And if you were asked a hypothetical question, push the button now, you could tell us how many F–18s you would need in the event you went down to 12?

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. Okay.

General PITMAN. But, in fact, we need those 66 aircraft—maybe not this year, specifically; but the aircraft are still necessary. A reduction in our carrier force would only affect the out-year procurement of aircraft.

Senator LEVIN. Yes. We're talking about per year, this year.

General PITMAN. Yes, sir. We need all 66.

A–6 AIRCRAFT TRANSFER

Senator LEVIN. Last year this subcommittee took the lead, and Senators Wilson and Glenn, I believe, were the leaders in this effort, to establish a plan to transfer A–6 aircraft from the Marine Corps to the Navy. I am wondering whether or not you had developed a plan for transferring those aircraft. If so, what is the plan?

Admiral DUNLEAVY. Yes, sir. The plan is initiated, and we're transferring five Marine A–6 squadrons to the Navy. One squadron has already been transferred. Aircraft have been transferred to U.S. Navy custody. We are doing it at the rate of one squadron a year for the next 4 years, for a total of five. We started this year, and it goes 1991, 1992, 1993, and 1994.

Senator LEVIN. Last year the Department proposed to terminate further production of the EA–6B jammer aircraft. At the time, the Navy had a requirement for at least 27 more EA–6B aircraft. Admiral, is some of this shortfall eliminated if the number of battle groups is reduced from 14 to 12 deployable carriers?

Admiral DUNLEAVY. Yes, sir. Some of the shortfall is eliminated. But we will still have a shortfall, and off the top of my head, I think it's about, if you come down to 12, we're still short about 13 or 14 EA–6Bs.

Senator LEVIN. Okay. General, the Marine Corps has EA–6Bs, so why not transfer, since there will be a shortfall in either event, the EA–6Bs from the Marine Corps to the Navy?

General PITMAN. Well, sir, we do support the Navy when they need additional aircraft, as we did in the Libyan operation aboard "America," where we used a Marine detachment to enhance the Navy EA–6Bs.

However, we have our own requirement for electronic warfare support. It is somewhat different than the Navy's. Our EA–6Bs also double in the role of the electronic support and signals intelligence collectors for us, whereas the Navy has other types of aircraft for that mission. Our EA–6Bs are our only interface that allows our ground forces to have electronic intelligence on a real-time basis. Even if the carriers were in the area, they are not tied into our tactical reconnaissance intelligence system that would give us the kind of information we need. As far as tactical jamming and electronic countermeasures, our tactics and requirements are, in fact, similar to the Navy's.

Senator LEVIN. Is there any reason why they couldn't be tied in?

General PITMAN. No, sir. They probably could be, but we have requirements for support when the carrier is not there. We sized our forces with the assumption that, in many cases, the Navy would be there and provide additional support. The EA–6Bs aboard the carrier are few in number. They only have enough electronic warfare support for the carrier force. So any other requirements would be beyond the carrier's normal scope of capability and we would have to wait for excess sorties. We don't have enough EA–6Bs to support our entire Marine Corps requirement. We accept that on the assumption that either the Air Force or the Navy would be involved with us in many situations and provide us additional support.

Senator LEVIN. My time is up. Senator Wilson.

NAVAL AVIATION MODERNIZATION

Senator WILSON. Thank you, Mr. Chairman. Admiral Dunleavy, just recently Secretary Cheney has cautioned a number of people that reform within the Soviet Union may not occur quite as rapidly as they suppose and that we have to do some contingency planning based upon an assumption that the Soviet military capability is going to remain formidable. With that background, and I think that wise caution to us expressed by the Secretary, how do you prioritize your requirements for naval aviation modernization?

Admiral DUNLEAVY. The number one priority in naval aviation is the A-12, and that's clear because of the aging of the A-6, which has been around for 30 years. We cannot modernize it much more than what we have in the package right now, with the weapons improvement program. In order to give the fellows who are flying off the decks of our carriers a chance to put bombs on target and get back, land, and recycle again, the A-12 gives us a fantastic capability. So that is number one, across the board.

The T-45 is critical because the T-2s and the TA-4s are getting awfully tired in our training command. We have to keep that program on line. We are working closely with Mac Air.

The advanced tactical surveillance aircraft, or ATS, has been looked at by CNA. We are waiting for the study that you directed. How that comes out is going to affect our planning and how we are going to replace the EA-6B, the E-2, the ES-3, and the S-3.

The P-7 is a critical aircraft, we need to replace the P-3.

Continued modernization of the F-14D, in order to make it last, until the advanced technology fighter comes along.

So those are basically the requirements—continue what we have and modernize what we can. But, again, we are going through both an evolutionary change in the Navy, upgrading some of the aircraft we have in the fleet today, and also a revolutionary approach in the sense of the A-12 and, of course, the advanced technology fighter, and how we fit into that with the latest guidance. We are looking at and reevaluating how we stand on that now.

Senator WILSON. All right. Given the inventory philosophy that produced your original A-12 force requirement of 858, will the new goal of 620 allow for both timely replacement of the A-6 and some possibility for variant growth as well?

Admiral DUNLEAVY. Again, I look at Secretary Cheney's guidance as a minimum, the 620, because he geared his thinking to 12 carrier battle groups. So we will be working that inside the building and looking at the 14 carrier battle requirement. We'll have to look at that in the out-years and how we continue producing the A-12 beyond the year 2000. We'll get what we need in order to replace the aircraft in the present program, the A-6. But, after the year 2000, we're talking about almost 6 years of A-6 life left, until we fully fund and buy out at the right rate the A-12 to replace the A-6—assuming 14 carrier battle groups.

Senator WILSON. With the program slide in the NATF announced by the major program review last week and the eventuality of block obsolescence for the F-14, will the Navy be looking for interim measures to provide for outer air battle support until the NATF becomes available?

Admiral DUNLEAVY. Assuming we can procure the F-14D, both new and remanufactured and make them last until the advanced technology fighter comes along, whatever it may be, as a spinoff of the Air Force ATF, the Navy ATF, or a modified Tomcat, or Tomcat 21—these are all things we are looking at inside Navy right now, and how we are going to get through the wicket in order to replace the F-14D in the 2005 to 2008 time period.

CLOSE AIR SUPPORT

Senator WILSON. Let me ask General Pitman a question that relates to everything we have been talking about, but is fundamental. We have had other witnesses come before us and they have been asked this question. Given the development of shoulder weapons, Stinger type weapons, would you tell the subcommittee what your level of confidence is in the continuing ability of the Marine Corps to continue what they pioneered, close air support or CAS?

General PITMAN. Yes, sir.

Senator WILSON. Some people have expressed great doubt that CAS can be continued in that environment.

General PITMAN. Well, it is certainly a tough environment. As surface-to-air proliferate throughout the world, even Third World countries have a significant capability, as you well know.

We have been looking at the risks very carefully. As a result, we have revised our tactics; we sometimes combine our CAS with a ground strike, either with artillery or by the ground forces themselves, to throw their defenses off balance, while we bring the CAS in. We have improved our weapons delivery so that we have a single pass capability with an extremely accurate delivery. We don't have to expose the aircraft for more than a few seconds to the gunner. Hopefully, his head is down because of suppressive fire provided by other aircraft with stand-off weapons, or by the ground forces being supported with the CAS.

So it has been a continuing battle. I think the argument is similar to that used in asking are you ever going to make an amphibious landing again. The answer is probably some day. It may be different from what we have seen before, where you drove up to the beach and slugged it out, because the weapons are now accurate enough to prevent that. But, our studies show that, in fact, we can conduct CAS. We have defense electronic countermeasures (DECM) equipment on the aircraft and flares to divert heat-seeking missiles. Again, there are accurate delivery systems that can use guided weapons, such as laser guided bombs or laser Mavericks, to hit the target from a stand-off position. There are a number of things that will allow us to go in, hit the target, and egress with very minimal exposure. However, it is still going to be a dangerous business.

Admiral DUNLEAVY. Senator Wilson, regarding the priorities, just redoing what I did in my head, I forget to mention the replacement for the H-46, the medium lift requirement for the Marine Corps. We have to look for a suitable replacement for that. That, again, is in our naval aviation, Navy/Marine Corps aviation requirement.

Senator WILSON. Thank you.

Senator LEVIN. Thank you. Senator Cohen.

AIRCRAFT CARRIER REQUIREMENT

Senator COHEN. Thank you, Mr. Chairman. Admiral Dunleavy, how many aircraft carriers are required, how many can there be deployed, the carrier deployed versus those in homeport? We have dealt with that issue over the years and it has always been assumed to be a 3 for 1 ratio. Is there some change in the Navy's analysis?

Admiral DUNLEAVY. No, there's no change in the analysis. I think some people neglect the requirement to maintain the aircraft carriers when they are in homeport, we call them "selected requirement availabilities," and if you go through the SLEP program, you also add that one in. When your carrier is tied up in homeport for 2½ or 3 months, you do massive maintenance. We have to modernize weapon systems, such as the CIWS, the close-in weapon system, or update our radar. We have to really shut the ship down and work on it hard.

Senator COHEN. Well, how many are required to keep one aircraft carrier in the Mediterranean, the Indian Ocean, and the Western Pacific?

Admiral DUNLEAVY. It's in the charts. I'll get my charts out again in a minute. I'll ask my staff to put the chart up again on the stand for you. If I'm told to keep the carriers, to deploy them as we have our need right now, for the Mediterranean, it is five, to keep them out there on a regular basis. With the Indian Ocean, it is 7.6. And to keep the regular one in the Pacific——

Senator COHEN. You're talking about keeping one?

Admiral DUNLEAVY. Yes, sir—in the Pacific, because of the homeporting at Midway, in Yokosuka, it is 1.7.

Senator COHEN. You need five carriers to keep one deployed in the Mediterranean? Right?

Admiral DUNLEAVY. The thing that a lot of people forget in the mathematics is the transit time. In order to keep them on station, we still say 6 months portal to portal. It takes about 5 to 7 days to get to Gibraltar from Norfolk and it takes about 5 to 7 on the way home. With economical steaming, now, it is going to take 7 to 10 days at 16 knots. That's what we do now to conserve fuel. Most of our transits are done at somewhere between 14 and 16 knots. So, that again compresses your time. In order to keep something in the Mediterranean full-time, that's what drives your requirement.

P–7

Senator COHEN. Let me ask you about the P–7. You mentioned the P–7 as a replacement for the P–3, and I believe the Navy at this point has requested some $20 million, $20.5 million, for the advanced procurement of the P–7. In view of the controversy that continues with the contractor, Lockheed, why should the committee at this point agree to advance funding of $20 million for the P–7 until it is resolved?

Admiral DUNLEAVY. I'll let Dick Gentz answer that.

Senator COHEN. And as you are answering that, perhaps you could tell me what your reasonable expectation might be for the

unit cost of the P–7. Lockheed, as I understand it, wants to renegotiate that contract; the Navy does not want to renegotiate that contract. Therein lies the rub. We would like to know what the figure is that we will be hit with.

Admiral GENTZ. The Navy has a contract, sir, and, as a part of that contract, the advance procurement that we have requested would allow us to honor that contract. We feel that the contract that we have with Lockheed is a valid contract. There have been some press reports, I don't think that even Lockheed would stand up to some of those rumored figures for the aircraft at what appear to be significantly higher prices than the option prices we have as part of that contract. We are planning to operate within the constraints of that contract.

Senator COHEN. How many years behind is the program now?

Admiral GENTZ. The program is not behind at all, sir.

Senator COHEN. It's not behind the production schedule?

Admiral GENTZ. They are working and we are working with Lockheed to get the specifications understood and to get the aircraft to meet the specifications. We believe firmly that the aircraft, as Lockheed now has it, will do that.

Senator COHEN. Has Lockheed suspended its program?

Admiral GENTZ. No, sir.

Senator COHEN. So there is no delay whatsoever? There is no delay in the development of the program at this point?

Admiral GENTZ. The contract, as written, can be met, sir. We would like, working together with Lockheed, to come to a better understanding.

Senator COHEN. Let me rephrase this. Are you going to be able to hold the written contract price with Lockheed?

Admiral GENTZ. Yes, sir.

Senator COHEN. Or is this committee going to be getting another bill over and above what has been negotiated for right now?

Admiral GENTZ. The answer, as far as the Navy is concerned, is no.

Senator COHEN. What do Lockheed's attorneys say?

Admiral GENTZ. That's a matter for the courts to decide, if it goes that far, I believe, sir.

Senator COHEN. The question I have is why should we put in advanced procurement money until that is resolved? It is one thing for the Navy to say that we're satisfied we have a satisfied contract. But Donald Trump said he had a solid contract, too, and there was some dispute about that in terms of whether or not it was legally binding.

Senator WILSON. Is this the one with Ivana?

Senator COHEN. Yes, this is the one with Ivana. [Laughter.]

Senator COHEN. I don't want to draw any comparisons between Ivana and the Navy, of course——[Laughter.]

Senator LEVIN. And that is outside the jurisdiction of this subcommittee, by the way. [Laughter.]

Senator LEVIN. Unhappily, some might say. But it is outside our jurisdiction. [Laughter.]

Admiral GENTZ. Let me say that very shortly after the contract was awarded, we seemed to have been confronted by Lockheed with a problem. That contract was not underway for a very long time

before Lockheed went to the Securities Exchange Commission (SEC) and also came to the Secretary of the Navy and indicated that they had a problem and a concern with weight. We have been working with them since that time.

Senator COHEN. Is there a problem in terms not of weight but price?

Admiral GENTZ. Again, I will answer that as no, sir.

Senator COHEN. From the Navy's point of view?

Admiral GENTZ. No, sir. We believe we have a firm understanding of the contract.

Senator COHEN. And there is no dispute with Lockheed at this point?

Admiral GENTZ. We are in some significant and serious negotiations. I talk both to the chairman and the president of Lockheed Aeronautical on a regular basis. They are in town talking to us.

Senator COHEN. I know. You have a firm understanding of what the contract requires, but you are locked into pretty serious negotiations. Now what does that mean?

Admiral GENTZ. It means that we are refining what we have, as we would do in many cases with a contract of this nature at this early stage in it.

Senator COHEN. My time has expired. Thank you, Mr. Chairman.

Senator LEVIN. Senator McCain.

Senator MCCAIN. When do you expect it to be refined?

Admiral GENTZ. We were able to convince the Secretary of the Navy that we had a valid case to continue doing that not very long ago, and a legal ruling is on his desk or about to be.

Senator MCCAIN. So do you expect it to be refined within days, weeks, or months?

Admiral GENTZ. Well, the first answer to that is because we don't believe there is a problem with the basic contract, Lockheed is continuing to perform under the contract, as written.

Senator MCCAIN. You say you are in the process of refining it. When do you expect it to be refined?

Admiral GENTZ. We are working with the specifications, Senator.

Senator MCCAIN. If you don't have any expectation of when it is going to be refined, say so. Otherwise, tell me when you expect it to be refined.

Admiral GENTZ. It is an ongoing thing. And it would be in any case.

CARRIER DEPLOYMENTS

Senator MCCAIN. Let me ask about the carrier deployments, please. I am very interested in the 7.6 carriers for the Indian Ocean. How long has the Navy been required by the Joint Chiefs to maintain a carrier in the Indian Ocean?

Admiral DUNLEAVY. We have had a naval presence, as you well know, out there for almost 40 years. The carrier really didn't start full time deployments out there on a regular basis until the Iran hostage events in 1979.

Senator MCCAIN. Excuse me—that's not the chart I want, but the one you had previously. That's the chart. Yes. I'm sorry—since the hostage crisis in 1979?

Admiral DUNLEAVY. In 1979–1980. And, since then, they have had us out there on a regular basis. Then they gave us a 96-hour tether, so we can go down to Diego Garcia or to Mombassa. And then, during other less tense times, we put a battleship in there. It depends on the world situation at that particular time and what Iran and Iraq are doing. But these are the statistics for the last 10 years for the Indian Ocean.

Senator MCCAIN. I very much appreciate the volatility of the region and I also am very loath to reduce from 14 carrier battle groups to 12. But, at the same time, it seems to me that you have literally over half of your carrier battle group requirements because of the Indian Ocean requirement, according to that chart; 7.6 of your 14.3 is because of the Indian Ocean requirement.

Admiral DUNLEAVY. It's getting there that's part of the problem.

Senator MCCAIN. I understand the logistics of it. But that jumps out at one when one carrier in one part of the world accounts for over half of your carrier presence.

Admiral DUNLEAVY. Yes, sir.

Senator MCCAIN. So the 96-hour tether does not reduce that in any way?

Admiral DUNLEAVY. No, sir.

Senator MCCAIN. You could not keep a carrier in the Mediterranean and have it in the Indian Ocean in 96 hours?

Admiral DUNLEAVY. It depends on what is going on in Egypt. If the Egyptians feel like it's a nice day and they'll let us go through, they'll let us go through the Suez. If not, I think it's a 28-day sail to get there from the Eastern Mediterranean.

Senator MCCAIN. When is the last time the Egyptians refused passage through the Suez?

Admiral DUNLEAVY. I'll have to get back to you on that, Senator.

Senator MCCAIN. I think it was about just before Nasser left office.

Admiral DUNLEAVY. But it's different with nuclear power, sir. If it is a conventional boat, they let us. With nuclear power, they sometimes have reservations. I'll have to get back to you with the dates on that. But I can give you a specific example.

I was there in 1980 and the *Nimitz* had to go all the way around because they wouldn't let it go through the ditch.

[The information follows:]

Although Egypt has never formally denied the U.S. Navy passage through the Suez Canal, there have been instances where transit requests have been addressed on a case by case basis instead of through the normal, routine process. These instances generally concern nuclear powered ships.

V–22

Senator MCCAIN. Thank you. As you know, there is still considerable pressure to restore production funding for the V–22. If that were forced by Congress, and, given there would be no increase, to say the least, in your procurement budget, what impact would that have on your other programs?

Admiral DUNLEAVY. If the V–22 comes back and no funds come with it, it would decimate naval aviation. It would probably take money out of the A–12, our top priority, the F–14 remanufacture, the F/A–18, the P–7. Every other aircraft program would be ad-

versely affected. If the V-22 comes back, money has to come with it. It's a hard requirement for the Marine Corps. It's a requirement in many, many different areas. It has civilian applications. It is a viable aircraft and works well. But it is an affordability issue right now and is a Secretary of Defense decision. But, if you come back with it, please send money.

Senator McCAIN. General Pitman, would you care to comment?

General PITMAN. I think that is an accurate statement. When the decision was made to terminate the program, over $7 billion was taken out of the naval aviation 5-year plan. That set a new level from which we started our budget deliberations. Some of those dollars are now in the medium lift replacement program. So we don't need the entire $7 billion back. However, we would need a plus-up of some sort, or we would have to buy them at such a slow rate that it would take over 20 years to transition.

NAVAL AVIATION PLAN

Senator McCAIN. Admiral Dunleavy, what is the status of the naval aviation plan that was required in the fiscal year 1990 defense authorization bill?

Admiral DUNLEAVY. Well, I was hoping to have that in my hand today, to give it to you, sir, but it is still in the building.

Senator McCAIN. Thank you. Clearly, the NATF has slipped to some degree. How serious is the risk that this aircraft will slip again and what are the impacts in terms of the adequacy of our F-14 force?

Admiral DUNLEAVY. The F-14D remanufacture—with the slip and what's going to happen because of Secretary Cheney's decision, we, inside OP-05, have to really look hard to make the remanufactured F-14D last until some follow-on fighter comes along. Right off the top of my head, I'm saying that I'm going to have to come back to Congress through the Navy and the Secretary of Defense and ask would you consider new manufacture F-14D until a follow-on fighter comes aboard. We are reevaluating different options. I mentioned the Tomcat 21 earlier, and those are all hard decisions that we are thrashing out among ourselves.

Senator McCAIN. But you are very concerned about a possible lack of fighter capability, given the scenarios, the possible scenario of further slippage of the NATF?

Admiral DUNLEAVY. Yes, sir.

Senator McCAIN. Thank you very much, Mr. Chairman.

Admiral DUNLEAVY. Senator, not only air-to-air and fighter missions, but also that should be a multi-mission aircraft, with air-to-mud capability also.

Senator McCAIN. Thank you.

Senator LEVIN. Thank you, Senator McCain. Senator Coats.

V-22

Senator COATS. I wonder if I could get back to the V-22 question. General Pitman, I understand that you are awaiting the congressionally-mandated costs and operational effectiveness analysis report before you make any final recommendations on that. There is some indication that that report is at least preliminarily avail-

able. Do you have any information relative to what that report is going to say that you can give to us today?

General PITMAN. Yes, sir. I have seen the executive summary of the report and of course we have had people on the working group as well as the steering group for the study. Therefore, we are pretty much on the inside of what the raw data says to date. It is quite favorable toward the V-22 in all categories, whether it is survivability, effectiveness, cost, life cycle costs, discounted dollars, or any of the categories that were considered. How that will be analyzed within the Department of Defense, I am not sure. It has to be reviewed to see, first, if there is agreement with the assumptions in the Institute of Defense Analyses study. The study may not make specific recommendations or conclusions. These will come as a result of the Department of Defense review, which is ongoing at this time.

Senator COATS. There is no question, is there, that at this point the study is considered accurate and accurately reflects the facts of the situation?

General PITMAN. Yes, sir, I think it does. Again, our people have been involved all along. We assisted in steering it in a reasonable direction. But there are a lot of people with different views that must be heard. So I think the end result will be that the facts are deemed as quite accurate.

Senator COATS. And, to repeat or to resummarize what you said, the effectiveness, as related to your current delivery systems, is all positive? It is all a ratio of over one, and sometimes many multiples of that ratio? Isn't that so?

General PITMAN. Yes, sir—up to six times in one category.

Senator COATS. In your testimony you indicated that the most important item in your request for fiscal year 1991 is to address the assault medium lift capacity?

General PITMAN. Yes, sir. It's a matter of shortage of H-46 helicopters. We are short of airframes now and, through attrition, will lose more. It is also becoming an obsolete aircraft. In today's operational environment, we must perform at night and at longer ranges, and the CH-46 is just not very capable.

Senator COATS. So, if we are going to maintain your number one priority for fiscal year 1991, we are going to have to spend a considerable amount of money to do that. And, to do so, apparently on the basis of the report that is going to become public here shortly, we are going to be spending more money for a less effective aircraft to maintain your assault medium lift capability. Is that an accurate statement?

General PITMAN. I believe that you could say that. Yes, sir. Again, it depends on how you look at it. The analysis covers a 20-year cycle. If you buy the V-22, starting next year, or in 1992, it's a sizable bill, depending on the rate at which you procure it. The original proposal was to procure the V-22 at a very efficient rate, transition quickly, and get on with it. As funds became tighter and tighter, we reduced the profile to provide a reasonable budget profile under a reduced defense budget.

However, it would also depend on what rate you would buy the other aircraft. We have a profile we are working in the defense budget for 1992 and beyond that addresses the medium lift replace-

ment, which would be a follow-on to the H–46, a conventional helicopter. But, as we look to maintain the same capability that we would have with the V–22, it will cost us additional personnel, additional aircraft, and more squadrons, and the analysis indicates that the alternative would cost more money over the long-term.

Of course, the Secretary of Defense could decide that we are not going to have the capability we thought we would have to meet our requirements. We'll have a lesser capability. We're going to carry fewer people ashore and take longer to get there. So you'll have to review the issues again. So there is some analysis that still needs to be done by defense.

Senator COATS. Admiral Dunleavy, how are we going to reconcile this? It appears that we are setting up a situation here where two branches of the service have very immediate priorities and needs, and yet one is going to have to be sacrificed in favor of the other. Yet, those two branches coordinate their efforts. Looking at the threat of the future, how are we going to reconcile the problem that we have here in terms of Marine Corps, the needs for the Marine Corps and the needs for the Navy in terms of an airlift capability, an aircraft capability?

Admiral DUNLEAVY. Well, we'll work on it together. Chuck and I work on it daily. I guess you mentioned that the A–12 is a naval aviation priority and the V–22 is a Marine priority. But, again, it is a hard choice that we must sit down and look at. Speaking for both the Navy and the Marine Corps, we paid for the V–22 twice, and if it comes back again without money, and it's decided the V–22 is going to come in, then we, the Navy and the Navy/Marine Corps, will have to work it out. If we have to fund it, it's going to come out of the A–12, it's going to come out of the F–14, it's going to come out of the F/A–18, and if you do it right, you have to kill something, other programs, big programs, in order to afford the V–22. I'm not smart enough to answer you, Senator, as to how we are going to solve that dilemma, because it is a priority.

Senator COATS. Well, it is conceivable that the Secretary could come back and tell General Pitman you are not going to be able to have the same capability that you presently have in the future. But is it not also conceivable that he could come back and say the same thing to the Navy, and that perhaps in order for both service branches to meet what they consider important functions in the future, both of you are going to have to do with a little bit less in order to have enough for each side? I just hate to put it as a one or the other situation. I'm trying to find a way so that both can perform some essential functions. But it seems to me like you are denying, or you are seriously jeopardizing one very essential function to meet what is considered to be a growing threat possibility for the 1990s by addressing it with 1970s technology, in order to meet what may or may not be a real change in the threat in the 1990s, relative to the Navy. Is there a way we can do both and still provide some effectiveness in terms of meeting your respective missions?

Admiral DUNLEAVY. Without additional money coming into the Department of Navy in order to fund the V–22, you would jeopardize the vitality, in my personal opinion, of the entire Navy/Marine Corps air team, because you'll come down with insufficient num-

bers, exceptionally high costs across the board on both programs, and it would become an affordability issue for both programs. You would also jeopardize some of the other critical programs in naval aviation across the board. That is the dilemma. Those are the horns of the dilemma that we are on right now if the V-22 comes back without funds.

In power projection—and I will be very parochial on this—power projection is the mainstay of the carrier battle group. That is the reason for the carrier battle group. The ultimate reason is to put bombs on targets and missiles up tailpipes. The other end of the spectrum is presence, just to sail by.

The A-6 is getting too cotton-picking old to carry on that mission and not jeopardize our flight crews. I feel morally responsible to say that we have to come along with the A-12 in order to give the kids in the fleet today who are flying our aircraft a damn good chance of doing their mission and getting back, of surviving. The A-12 is the answer to that.

Senator COATS. One last question, if I may. I beg your indulgence, Mr. Chairman. I know I am over my time. If it were determined that carrier force requirements could be reduced, and the number of carriers from 14 to 12, would that provide sufficient funds so that you could upgrade to provide the aircraft you need to meet the demands of those 12 carriers and General Pitman could meet his requirements?

Admiral DUNLEAVY. Senator, I'll have to come back to you with the mathematics of that. Off the top of my head, I'd say no. But I want to come back with good analysis and show you the costs by individual program in order to fund what you are talking about.

Senator COATS. Thank you.

[The information follows:]

A reduction in carrier numbers would result in less money being appropriated to the Navy during the congressional budget process, therefore, the funds recouped through a reduction in forces would likely not be available to the Navy for aircraft procurement.

Senator LEVIN. Thank you, Senator Coats. Senator Glenn wanted to be with us very much today. For obvious reasons, this is an area of great interest and concern to him. He cannot be here because he is managing a bill on the floor at this time, but he has given me an opening statement which I will make part of the record. It is a short opening statement, and, given the circumstances, I think I am going to read part of it, because of the obvious feeling that he put into it.

After welcoming our witnesses, all of them, he said the following: "I would particularly like to welcome General Pitman today as he appears before this committee for the last time as an active duty marine. As you know, Mr. Chairman, General Pitman will retire this August after nearly 38 years of dedicated service to this country. To state that General Pitman has had an outstanding military record as a marine officer and aviator, highlighted by a superb combat record, is not to engage in hyperbole. One only has to look at his record to realize the significant contributions that he has made to the Corps and to this country during the last 38 years. Let me highlight just a few of his accomplishments," Senator Glenn says. "General Pitman enlisted in the Marine Corps in 1952. He re-

ceived his commission and Navy wings in 1955. General Pitman made two combat tours to Vietnam, where he flew over 1,200 helicopter combat missions in three different helicopter models. His combat awards include the Silver Star, four Distinguished Flying Crosses, more than 60 air medals, and the Purple Heart. During his two combat tours, General Pitman was shot down seven different times. In 1970 he was severely wounded while flying a mission over Laos, and had to be evacuated to the United States for treatment."

He then goes into many other contributions which General Pitman has made. I will put Senator Glenn's entire statement in the record. But I think because of Senator Glenn's feelings, as expressed in this statement, I wanted to take the time of the subcommittee to read part of it. I think it is so beautifully written, General, that we will make sure you get a copy of this statement.

General PITMAN. Thank you, sir.

Senator LEVIN. I have also been asked to submit Senator Thurmond's opening statement for the record as he is unable to be here with us today, so I will do that at this time.

[The statements of Senator Glenn and Senator Thurmond follow:]

PREPARED STATEMENT OF SENATOR JOHN GLENN

Mr. Chairman, I would like to add my welcome to our witnesses today. I had the pleasure to meet with both of these distinguished officers recently in my office and was encouraged by the enthusiasm with which they approach their jobs as the leaders of Navy and Marine Corps aviation.

I would particularly like to welcome General Pitman today as he appears before this committee for the last time as an active duty marine. As you know, Mr. Chairman, General Pitman will retire this August after nearly 38 years of dedicated service to this country.

Mr. Chairman, to state that General Pitman has had an outstanding military career as a marine officer and aviator, highlighted by a superb combat record, is not to engage in hyperbole. One only has to look at his record, which, without objection I would like to place in the record at the conclusion of my remarks, to realize the significant contributions he has made to the Corps and to this country during the past 38 years.

Let me highlight just a few of his accomplishments:

General Pitman enlisted in the Marine Corps in 1952 and received his commission and Navy wings in 1955.

During his career, he served as the Commanding Officer of three different Marine aviation units, including a helicopter squadron engaged in combat operations in Vietnam, and Commander of the First Marine Aircraft Wing in Okinawa.

General Pitman made two combat tours to Vietnam where he flew over 1,200 helicopter combat missions in three different helicopter models. His combat awards included the Silver Star, four Distinguished Flying Crosses, more than 60 Air Medals, and the Purple Heart. During his two combat tours, General Pitman was shot down seven different times. In 1970 he was severely wounded while flying a mission over Laos and had to be evacuated to the United States for treatment.

During the past 38 years, General Pitman has had several key joint and senior staff assignments. His joint service included: being a graduate of both the Armed Forces Staff College and the Air Force's Air War College; Marine Corps member of the Chairman's Staff Group, Office of the JCS; Senior Marine assigned to the Joint Service Iranian rescue mission, Operation Desert One; and Assistant Chief of Staff, Combined Forces Command, Seoul, Korea.

Senior staff positions included: Marine aide to the Secretary of the Navy; Marine representative in the Navy's Office of Program Appraisal; and his current assignment as Deputy Chief of Staff for Marine Aviation.

General Pitman has flown 84 different aircraft including every helicopter in the Army, Navy, and Marine Corps inventory; he also has flown fixed-wing aircraft as

diverse as the MiG–17 and the B–52. When he retires in August, he will have accumulated more than 10,500 flight hours in military aircraft.

So, Mr. Chairman, as we can all see, the Marine Corps and the Nation will be losing a dedicated marine and a true professional. On behalf of the American people, I would like to add my personal thanks and appreciation to General Pitman for a job well done—and wish him and Mrs. Pitman all the best as they move on this summer to new challenges.

PREPARED STATEMENT OF SENATOR STROM THURMOND

Thank you, Mr. Chairman: Admiral Dunleavy, General Pitman, and Admiral Gentz, I want to join the chairman and members of the subcommittee in welcoming you to today's hearing. Typical of our chairman's mode of operations—he saved the best for last.

Both the Navy and Marine Corps, due to their roles and missions, have avoided the predicted draconian cuts that made the headlines for the Army and the Air Force over the past month. I expect, however, that as the Defense Department takes the wraps off its Five-Year Defense Plan, even these services will feel the results of our victory in the Cold War.

During past cuts in defense funding, the typical approach has been to cut all the services proportionally. To use the same approach during this period of funding reductions would be a mistake. Over the past 40 years, the focus for the Air Force and Army has been Europe, where even the most pessimistic among us agree that the threat has diminished. These services, therefore, justifiably share the largest portion of the budget cuts.

The Navy's focus has always been global, where the threat—although less significant—still remains powerful. More important than the potential threat, however, is that the Navy secures the lifelines of our economy and provides us the means to reinsert our forces if the need ever arises.

Because of these continuing significant roles, it would—in my judgment—be unfortunate if the Department follows the old "across-the-board-cuts" approach in developing the Five-Year Defense Plan.

We will make some very difficult decisions in the near future—especially if the House budget resolution is an indicator of where Congress is heading with our defense programs. An approximate $25 billion cut in this year's defense budget will render any plans presented by our witnesses today obsolete.

A cut of that magnitude is not responsible. It will cause havoc in the orderly reductions of the force structure and defense programs. I hope that the members of the Armed Services Committee and the Senate will resist the pressure to achieve a "peace dividend" and support a more rational reduction in the defense budget.

Thank you, Mr. Chairman.

A–12

Senator LEVIN. Now let me pursue the A–12 issue for just a moment. Last week Secretary Cheney decided to defer by 5 years any Air Force procurement of the A–12. What I am interested in pursuing with you, Admiral, is whether or not this will increase the cost of the A–12 program and if you can tell us by approximately how much. Apparently this is still a classified number. But if you can, give us some indication as to whether it is a significant increase, a minor increase, or how you would phrase it.

Admiral DUNLEAVY. The Navy will have to absorb the overhead costs, and I don't have those figures. But we are looking at it right now, Mr. Chairman, and I will get back to you as soon as we have the hard figures, regarding the decision made by Secretary Cheney.

But we did have a review last Thursday out at the McDonnell Douglas plant. It was a review by all the military people involved, and General Dynamics, and we are very pleased with the progress. Everything we wanted the aircraft to do, it looks like they are going to be able to do it. It is on schedule, on cost, and we are looking forward to getting it into the fleet.

The declassification, which I think you would be interested in, is working itself through the building right now, and a letter should be coming to you, the 14-day notification should be coming to you hopefully within the next couple of weeks. So we will be able to get at least part of the program declassified so that we can talk in open session about the airplane.

[The information follows:]

The deferral of A-12 procurement by the Air Force increases the Navy A-12 procurement costs due to: (a) the absorption of all non-recurring costs by the Navy versus sharing them with the Air Force, and (b) an increase in program recurring costs resulting from the lower total quantity procured.

Senator LEVIN. We will be able to talk budget numbers within 3 or 4 weeks?

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. Are you able to tell us today whether or not the decision of Secretary Cheney to defer the Air Force buy by 5 years will significantly increase the cost of the program? Can you give us some kind of estimate? Is it significant? Is it modest? Is it slight? Can you give us some indication? Do you have it?

Admiral GENTZ. Well, clearly, the escalation that would be caused by that will add to the cost of the aircraft.

Senator LEVIN. Can you characterize it for us in any way?

Admiral GENTZ. I don't think I can do that, sir. It is far enough into the out-years now that that would be pure conjecture.

Senator LEVIN. Well, we will wait for the numbers and will pursue that then. I don't know if you have been asked this about the A-12, but is the A-12 on schedule? Are you able to tell us in open session?

Admiral DUNLEAVY. Yes, sir. It is on schedule.

Senator LEVIN. It is on schedule. Is it overweight? Have you been asked that yet today? I may have missed it. If so, can you tell us in open session?

Admiral GENTZ. The key to an aircraft is whether it will meet its operational capabilities, and we are at the position right now where we are very sure that that will happen. The weight of the aircraft is an indicator. Of course, each aircraft is seen by its different proponents from different viewpoints. Weight is one part of that. But, clearly, the operational characteristics are what we are trying to work toward.

Senator LEVIN. Do you know whether or not that is a classified question, that is, whether or not it is overweight?

Admiral GENTZ. The answer is yes.

Senator LEVIN. We will leave that go then.

Admiral DUNLEAVY. The entire program, Mr. Chairman, is still in the SAR category.

Senator LEVIN. I am not asking for the weight or how much overweight. I'm just asking, if it is true that it is overweight, would the fact of that be classified? If it is true, would the fact of it be classified? If the answer is yes, that's fine. If the answer is no, then——

Admiral GENTZ. I'll say yes. [Laughter.]

Senator LEVIN. Okay then. Sounds like multiple choice here.

Admiral DUNLEAVY. I guess you want "all of the above." [Laughter.]

Senator LEVIN. When we get the numbers declassified, let us know if that can also be declassified. I agree with you that that is only one characteristic. But still, it is a question of some public debate already, and so the facts ought to be made known publicly if they can be made known publicly.

Admiral GENTZ. I might add that a number of us lived through the F-18 program as it came out, and there was a lot of concern of various individual characteristics of the aircraft. I think now everybody is very pleased with the way it operates. So we are working this program jointly very well.

Senator LEVIN. Again, I agree with you that that is only one characteristic. But, nonetheless, since it has been made a public issue, the facts should be made public, and then people can decide for themselves if, in fact, that is possible.

AIRBORNE SELF-PROTECTION JAMMER

This winter, the Air Force decided to drop its participation in the airborne self-protection jammer. The Navy has elected to stay with that program. How much more will that jammer cost the Navy now that the Air Force has decided to drop out of it?

Admiral DUNLEAVY. Well, the R&D is virtually complete, and the procurement costs, we are figuring because of the Air Force dropping out, will increase the unit price somewhat less than 10 percent. That is a broad figure. But the ASPJ is a critical requirement. We, the operators, firmly believe that and we put the money into it. The measures that are affecting this have been looked at hard. More testing is going to be done this late summer/early fall, and it is the only program that we have on the boards, on the brass board, really, that looks like it is going to work and that is going to keep the missiles on the rails. It is a philosophical discussion among the operators that we would rather keep the missiles on the rails instead of trying to defeat them in the air.

Senator LEVIN. Now that the Air Force has dropped out of the program, is it still cost effective for there to be two sources of production?

Admiral GENTZ. At this point in time, we believe it is, sir. Yes, sir.

Senator LEVIN. Is that under review or is that a conclusion you have now settled on?

Admiral GENTZ. Well, what we don't want to do is a premature down-select and possibly end up with the wrong one. So at this point in time, rather than the program taking unnecessary chances, we would prefer to continue with the contractors who are currently working together.

Senator LEVIN. So it is your current plan to continue with the two sources?

Admiral GENTZ. Yes, sir.

Senator LEVIN. Thank you. Senator Wilson.

P-7

Senator WILSON. Thank you, Mr. Chairman. I am a little confused because, like Senator Cohen, I was under the impression that

the P-7 had fallen behind schedule. Admiral Gentz, you say it is on schedule?

Admiral GENTZ. I don't want to mislead anyone with this. The issue clearly is one which we are dealing with with Lockheed, and it is a contractual matter. Lockheed has indicated publicly that they had problems with the design. We are now working closely with Lockheed to get those problems under control and believe that in the interim timeframe that we have a contract and that we have a schedule. The outgrowth of that could possibly be some mutual agreements within the scope of the current contract.

Senator WILSON. Let me just ask you this. It is the follow-on to the P-3, it is presumably a key component in your ASW program. When I asked Admiral Dunleavy to state the priorities for naval aviation, he stated, as I expected he would, the A-12, and he mentioned the T-45. What importance are you giving to the P-7?

Admiral DUNLEAVY. In the pecking order, if that is what you are looking at, it is right in the middle if you come right down to it. Again, it is a hard requirement. We need a replacement for the P-3, and we work very closely with Dick Gentz and his fellows at NavAir and we are aware of what contractual work he has put to press with the help of the Secretary. Again, in the P-7, we need something to replace the P-3 because ASW, killing submarines, is still the number one priority of the Navy.

V-22

Senator WILSON. General Pitman, there have been a number of V-22 program reviews since last year's debate. One, which was an independent study by BDM, has recommended the V-22 over the alternatives, due to what they described as "nearly equal operating and maintenance costs but the greater survivability of the V-22." Would you explain the results as you interpret them and whether or not you consider that this study is an accurate presentation?

General PITMAN. Yes, sir. The Marine Corps has been studying this off and on for the past 15 years. That is why we got into the V-22 program. All of the earlier studies, including what we know of the ongoing IDA study, indicate that if you want to survive in combat in the 21st century, or even today, you must have better systems. The V-22 provides that system. So, when you consider attrition, sustainability, survivability, and those sorts of measures of effectiveness, the V-22 wins. It is new technology and it should win.

On the other hand, if you cannot afford that technology, the continuing R&D, of which there will be some, and the initial procurement, you may have to settle for something significantly less. I think that is what the studies are saying. We are not saying that the Marine Corps is not going to be able to carry out its mission in the future if it has to use a helicopter instead of the V-22. It just won't be nearly as capable as the alternative would be.

Senator WILSON. But in comparison, specifically, with the alternative mix of SH-60s and CH-53s, is it an accurate statement from the BDM study that we're looking at nearly equal operating and maintenance costs for the V-22?

General PITMAN. That's correct, sir.

AV-8B

Senator WILSON. I have another question, General Pitman, with respect to gaining an all-weather capability for the AV-8B. I am told that a radar program is required. Is this a Marine Corps aviation priority?

General PITMAN. Yes, sir, it is. But that will not give us a true all-weather capability. It will improve our capability at night under the weather.

We currently have a night attack system which uses forward looking infrared. However, to get the ranging necessary for accurate first pass delivery, having a radar in the aircraft gives us a great advantage. We have looked at this as an add-on to our current AV-8 program to give our follow-on aircraft more capability. We are working this with the Spanish and the Italians on the AV-8B radar development. Approval has been granted to negotiate with those countries and negotiations are currently underway. That does not mean additional aircraft for us. The radar is funded within the current program.

T-45

Senator WILSON. Thank you. Admiral Dunleavy, I am told that design changes required to make the T-45 more adaptable for carrier landing training have been identified and that they are progressing. Is that correct?

Admiral DUNLEAVY. Yes, sir.

Senator WILSON. There has been a corporate restructuring between Douglas and McDonnell. Is that affecting the progress on the T-45?

Admiral GENTZ. What is happening is that the aircraft is being moved from the Douglas part of McDonnell Douglas Corporation to St. Louis and the McDonnell Aircraft Company component. That move, we believe strongly, will help the program and it is proceeding with our approval.

MAVERICK

Senator WILSON. General Pitman, the Maverick has been terminated in the fiscal year 1991 request. What does this do to the Marine Corps' air-to-ground capability? What do you plan in lieu of the Maverick missile?

General PITMAN. Sir, the Marine Corps is primarily interested in the laser Maverick, which was terminated in the fiscal year 1988 budget. It is still being delivered as we speak. The laser Maverick is our weapon of choice for CAS. The weapon that was terminated last year was the IR Maverick, which is really a Navy weapon, which we can use, but it is really not a CAS weapon. It does not distinguish between friendly and enemy tanks or other targets, and therefore, is not a CAS weapon. It is a good interdiction weapon.

Looking at our inventories, we have what we need for the next 4 or 5 years in the laser Maverick category. The Navy would have to speak to their requirements for IR Maverick. However, I did check before I came over, and for the low intensity conflict on the Navy

side, they have enough IR Mavericks on hand to meet that requirement, with the buy-out as we know it today.

Now, as a follow-on to that, we have the AIWS, the advanced interdiction weapon system, which we hope comes on line to replace both the laser Maverick and the IR Maverick. That is in R&D at this time. In addition to that, we have a less capable and less expensive Hellfire missile, which we use on our Cobra helicopters.

AMRAAM

Senator WILSON. Admiral Dunleavy, on missile requirements for the Navy, the Air Force has recently suspended acceptance of the AIM 120 AMRAAM missiles and deferred a milestone full production review until satisfied that certain problems that were discovered during F–15 operational tests are resolved. What bearing does that have on AMRAAM acquisition as a priority for the Navy's munitions modernization plan?

Admiral DUNLEAVY. We're working very, very closely with the Air Force on that. It's a reliability problem and we need a weapon system, a missile, that will have a minimum of 450 hours MTBF, mean-time between failures. Right now the problem we are having in the evaluation is that it's about 200 hours. So we are working very, very closely with them. We need the AMRAAM as an intermediate range missile. We are very, very satisfied with the AIM–9R in the short range, and the AAAM, which we are developing to replace the Phoenix for the long range. So AMRAAM is critical, and we are working closely with the Air Force on this. I think, by working together, we will resolve the problems.

TACTICAL BALLISTIC MISSILE THREAT

Senator WILSON. Thank you. My final question I know has a shared interest by the chairman. He and I have requested a hearing of the full committee on what clearly appears to be a growing proliferation of ballistic missile capability and what that constitutes as a threat, both to our allies and to our own contingency forces. We have been talking a lot today about carrier deployment. I would be interested in gaining your reaction, Admiral Dunleavy, with respect to your perception of the threat to naval contingency forces, either in the Mediterranean or in the Indian Ocean, from tactical ballistic missiles in the hands of hostile powers armed with nuclear, chemical, and biological warheads, and what in terms of naval air modernization we are looking at by way of protecting carriers, their crews, and aircraft against that threat.

Admiral DUNLEAVY. Again, you're talking about missiles against a moving target, such as a carrier battle group. You are talking about a targeting problem. I will give you a personal experience. As recently as 3 years ago we took carrier battle groups from the East Coast all the way up to Bodo, Norway, up into the Vesti Fjord of Norway, north of the Arctic Circle. It was a large battle group with two carriers plus the British jump carrier, if you want to call it that, the Arc Royal, and many, many other ships, totaling about 60 ships and over 200 aircraft.

We disappeared for quite a while. Now, we used all kinds of intelligence to do that. We used weather, and we knew how to maneuver the force. It was extremely well-planned by a lot of young lieutenant commanders and commanders for a period of about a year before we did it. The exercise lasted for 6 weeks, and we proved that targeting a mobile carrier battle group with any precision is extremely difficult. It was because of the fine work done by a lot of good staff fellows embarked on the ships.

So it is a targeting problem. You alluded to the fact of vulnerability of battle groups. I say that a moving target is very, very difficult. Everything is vulnerable, I don't care what it is. Sooner or later, if you do it wrong, you're going to be caught. But a moving battle group is a heck of a lot less vulnerable than anything else that we have in the arsenal. So, tactical weapons against a moving target, I feel, is a very, very difficult challenge for anyone.

Now, if they are launched against a battle group, we have defense in depth—I like to call it "offense"—where we have the Tomcats with the long range; we have the F/A–18 with the good, close-in intermediate range system; we have our close-in weapons; we have our Aegis destroyers and cruisers; we have our other ships around the battle group; and on the ship itself we have decoys and also close-in weapon systems. So it is easy to say but very, very difficult to do—that is, to successfully target and launch an attack against a carrier battle group.

Senator WILSON. Well, that is somewhat responsive but I don't know that it is entirely responsive. Let me ask you this. You were talking about disappearing and making use of weather. You are also talking about using all kinds of ECM and you are talking about the use of Aegis and air cover. Are you satisfied with what you have now out in the bright sun of the Mediterranean or the Indian Ocean, where you would have to rely exclusively on ECM? Are you satisfied that there is not more in the way of anti-ballistic missile defenses required for a carrier group or a battle group of any sort against a tactical ballistic missile threat that could be launched either from a submarine or, if you are in the Mediterranean, the obvious scenario is from a hostile land launched missile, from a hostile nation?

Admiral DUNLEAVY. Excuse me, sir. You are asking the wrong guy. I am never satisfied with anything. I want to continue pushing technology to give us the best capability against no matter what is coming at us.

But, again, in the Mediterranean, I can take a carrier battle group and hide it and also know what he is doing. There are all kinds of intelligence coming into the carrier battle group that tells us exactly what the bad guy is even thinking about. If you are smart—and, thank God, our young fellows are—we know what to do and where to go.

I have been sailing the Mediterranean for quite a few years. I'm a WESTPAC sailor from the recent past. But back in my earlier days I saw a carrier battle group hide in the Aegean for 3 days with the Soviets looking for us. Again, it is the way you play the game, and it is more chess than checkers. Again, the targeting is a critical thing. You have seen space shots from astronauts in space

looking down. But, again, being a smart seaman and airman, you can maneuver your battle group such that he can't say that's that.

You can use electronic warfare and all kinds of other exotic things that make things look different. It is not stealth. It is just good electronic management. A lot of people get involved in what we call EMCON, or "emission control." EMCON is control of your emissions. I referred to my previous fleet experience. We did not transmit one iota of anything. Everything was done either preplanned or semaphore. We operated. We flew. But nothing was ever transmitted. That's good, solid, operational knowledge and ability to do the job.

So, again, you know what the bad guy is doing and you have aircraft and other intelligence coming in, feeding you through aircraft and other means, telling you exactly what his moods are. You know when he is coming up, and you can maneuver. You can hide. Better yet, you can hit him.

Senator WILSON. Thank you.

HARM MISSILE

Senator LEVIN. Thank you, Senator Wilson. Admiral, you have been asked about missiles. Let me ask you a question about the Harm missile second production source. The request for the Navy and the Air Force has now been cut to a level which is barely above the minimum sustaining rate for two producers. Does it still make sense to have two producers?

Admiral GENTZ. I will answer that, sir. We have just awarded Ford its first contract, and we have in the 1991 request the additional buy. We feel that that is necessary to continue. We feel that it will give us a better look at those two missiles, to determine, because they are different, which one is best. Ultimately, as we go through this, the number of Harms will determine whether or not we can keep two sources. Through this year, we believe it is imperative.

Senator LEVIN. There have been some press reports that the Department of Defense is encouraging the services to drop second production sources where they are not efficient. You are saying that this is not the case with Harm?

Admiral GENTZ. We have been working closely with the OSD to do the right things on all second sources. Many of the second source endeavors were done, of course, in a different environment. So we are looking at that across-the-board. We are working closely with them.

NAVY/MARINE CORPS TEAM

Senator LEVIN. We talked a bit before about mission duplication. A number of Senators have asked you about this. I asked you about the EA-6Bs before, Admiral. Let me now ask you about the F-18. It's the same kind of question, between you and General Pitman. We obviously cannot afford redundancy of military capabilities. The question is why does the Marine Corps need to have its own F-18s if the Navy has F-18s? Why can't the Marine Corps count on the Navy to provide the F-18 support? Why don't we hear from both of you on this.

Admiral DUNLEAVY. I always talk about the "Navy and Marine Corps team," no matter where we go, we go together. We train together and we have always been involved with the Corps in amphibious warfare, but especially in the last few years. On both coasts we train from the very first day of the workups of the battle groups and the amphibious groups. So we have a totally integrated team.

I always believe that it should be a Navy/Marine Corps team no matter where we go. Now, there may be excursions where the Corps goes alone, and that is where the corps feels that they need to have other aircraft, fixed wing aircraft to do the job if the Navy is not there. I personally feel strongly that the Navy and the Marine Corps should always be together, no matter where we go—amphibious warfare or hostage rescue or neoops, as we call them. I will let Chuck give you his viewpoint on the Marine Corps without the Navy. But I just don't see us as being separate.

Senator LEVIN. General, why don't you give us some scenarios where the Marine Corps would go to war without the support of the Navy.

General PITMAN. We spent 10 years in Vietnam without Navy support for our ground forces which was provided by our Marine air. At the same time, we supported Navy and Air Force forces in North Vietnam.

Senator LEVIN. On an amphibious assault, could you give us an example?

General PITMAN. No sir, I can't give one off-hand where we have done that. We have not had that many amphibious assaults. Although, when we went ashore for the first time in Danang, it was with naval air. That was one of our amphibious assaults. Grenada was another, which also had naval air support.

It isn't the fact that we don't anticipate the use of Navy and Air Force tacair to support us. Our forces are not sized to provide all the tacair that we need. Our F/A-18s provide CAS as well as fighter defense as we move into the landward side of the battle. Our squadrons do not meet requirements to cover our three divisions that we can put in the field. They don't come anywhere near meeting our needs.

In a study we recently completed with the Navy, we looked very closely to see if, in fact, we had too much tacair on the Marine side. We looked also at how we would use Navy tacair. As the carrier comes close to land, if there is a threat, we would be using the tacair, and they would defend the carrier. The carrier is going to have to keep moving around because of threats to the task force such as tactical missiles and enemy air. So it is going to have to stand off. It's aircraft are busy defending the task force and other things. We found that it took two Navy F-18 squadrons to give us the same number of support sorties that one of our squadrons provides. That is, if they weren't doing anything else. This is because of where they are based and how they operate in the cycle of carrier operations.

Senator LEVIN. Did that joint study reach a conclusion as to whether or not the Marines ought to have a separate F-18?

General PITMAN. Yes, sir. It did.

Senator LEVIN. That was a joint Navy/Marine Corps study?

General PITMAN. Yes, sir, signed off by the CNO and the Commandant.

Admiral DUNLEAVY. But, Mr. Chairman, what it comes down to is what Chuck just mentioned about protection of the carriers, protection of the entire area, protecting the entire battle force or battle group, amphibious ships as well as the carrier, from the air threat. We have the fighters, granted, the F-14Ds, they are controlling the air space over the entire battle area. You have the S-3s protecting the entire group, the amphibious ships included, from the submarines, and the SH-60 pouncers will be doing the same thing, protecting the entire group against the submarine threat. You have your F/A-18s doing the short-range strike and CAS, while the A-6s and A-12s will be doing the long-range interdiction and firing behind the lines to take out the resupply routes. So, again, it's a Navy/Marine Corps team that we are looking at across the board.

Senator LEVIN. Was that study that you made reference to within the last year?

General PITMAN. Yes, sir. It was.

Senator LEVIN. Was it after the budget was reduced significantly?

General PITMAN. Not as significantly as the one we now anticipate in 1992 and beyond. But the budget was, in fact, already on the decline.

It specifically looked at the sizing of Marine forces in this teamwork configuration. I would emphasize that is what we are talking about. We don't anticipate the Navy going ashore. We are the landward extension of naval aviation, and, when required we back up the seaborne side from our shore bases, and they do the same for us from the carriers when they are present.

If we get into that kind of assault situation, the area that we'd have to cover with an amphibious task force, a carrier battle group, and Marine forces ashore, would be an extensive one. We believe our study also indicated that it took about three carriers' worth of air to support one Marine brigade in an amphibious assault. This is because of all the other things that Navy tacair must do, in addition to providing us the CAS we need. There are scenarios, of course, where we would not be able to get Marine air ashore, and we would have to rely totally either on naval air or Air Force air to give us our support from longer ranges.

Admiral DUNLEAVY. That leads you to campaign operations where, like in an amphibious assault, you'd want to have two, possibly three, carriers in the area in order to have continuous 24-hour coverage with the CAS, where you are flying 12 hours on and 12 hours off, where you have crew rest, time to resupply, the whole nine yards, so you can sustain combat operations. That's a critical thing. The carrier gives it to you.

Senator LEVIN. Senator Dixon is not able to be here, as much as he wanted to. He is in a Banking Committee hearing at the moment. There are a number of questions that he has for the record, and we will put those in the record with your responses. I have no further questions. Let me just pause a moment here to see if Chairman Nunn might have any questions. Senator Nunn.

CONTINUOUS CARRIER DEPLOYMENT

Chairman NUNN. Thank you, Mr. Chairman. I don't want to go back over territory you have already covered. I tried to get here earlier, but could not. I wish I had been here for the entire hearing.

I was just looking at this chart. I see it is up on the board. You have a total of 14.3 carriers, and if I understand the chart, that allocates five to the Mediterranean, 1.7 to the Western Pacific, and 7.6 to the Indian Ocean. How many on station does that give you?

Admiral DUNLEAVY. That gives you one in the Mediterranean, one in the Indian Ocean, and including the Midway homeported in Yokosuka, that gives you about 1.2 in the Western Pacific.

Chairman NUNN. Total on station, then, is how many? Total on station, if you add those 1.2 and the others?

Admiral DUNLEAVY. On station, it is one in each one of those areas. But you have to add in there the transit time to get there to be on station.

In the Mediterranean, depending how fast you go, if you are going 16 knots, it is probably 5 to 7 days to get into Gibraltar. If you have to go all the way over to the other side, it's another couple of days.

In the Indian Ocean, it's 30 days to go from the East Coast or the West Coast to get there. And you'd have to go around the coast of Africa to come out of the Mediterranean, assuming, as was mentioned before, the Egyptians will not allow you to go through the Suez, which they have done in the past, especially if you are nuclear powered. It takes you about 28 days to go around Africa to get up to the Straits of Hormuz.

Chairman NUNN. You have a continuous carrier in the Mediterranean, right?

Admiral DUNLEAVY. Yes, sir.

Chairman NUNN. What are your missions performed there by the carrier that is there on a continuous basis that cannot be performed by land-based air?

Admiral DUNLEAVY. Well, again, the carrier is on station, and as things heat up, depending on what intelligence is coming in, he can be within 50 miles or 100 miles of the coast, and he can have the aircraft airborne if the intelligence comes in to be airborne, such as we did in the Libyan raid most recently. And, as soon as the President or Congress says "do it," we do it. If it's land-based, it has a hard time getting there.

Chairman NUNN. Getting where? It depends on where the carrier is, doesn't it?

Admiral DUNLEAVY. It depends on where you are.

Chairman NUNN. You have to happen to be in the right place.

Admiral DUNLEAVY. Yes, sir.

Chairman NUNN. It takes you a long time to get there. If it's not there (indicating), but its here (indicating), you're in a different wrong place, right?

Admiral DUNLEAVY. That's why we believe in forward deployment, so that we, so that the American people, would have the ability to respond——

Chairman NUNN. But there would be a lot of places in the Mediterranean that would be closer to land-based air than they would be where the carrier happens to be, right?

Admiral DUNLEAVY. It depends on the scenario, Senator.

Chairman NUNN. Sure.

Admiral DUNLEAVY. But, usually, we have the intelligence to know that things are heating up, usually in the Eastern Mediterranean, to be honest with you. In my experience, I was in the Eastern Mediterranean. So, as things were starting to heat up, we just eased over there. So we launch aircraft, we start broadcasting, emitting our radars, we talk on the radios, and then they know we are there. That is presence. That can really get them toned down.

Or you can go the other end of the spectrum and say okay, now hit the target. Then the fellows are airborne, fully armed, ready to go, and when the National Command Authority says to hit the target, within 30 minutes, depending on where they are, they can be there. But, again, we keep pretty good tabs through the intelligence systems on what is going on and we could be stationed off the coast within hours.

I have been in port, Naples, Italy, and told to be off the Coast of Lebanon, and we are underway within 3 to 4 hours and we are over there within 24 hours. Now, that's hard steaming. With nuclear power you can get there quicker because you can go up to 30 knots and get there. With conventional steaming, you're probably 26 knots.

Chairman NUNN. Former Secretary of the Navy John Lehman said there was no longer any need for continuous deployments. How do you react to that?

Admiral DUNLEAVY. Well, again, if we are going to do the job that we are paid to do, you have to stay on station in order to be able to reply.

If it is peace that is breaking out all over the world and no one is going to be coming at us, I am more concerned with the Third World. I always have been. This is Dick Dunleavy talking now, because I have always felt that, the way things are developing, the Soviet is never going to have to come at us directly. He will always come at us through the Third World.

And now, because of the proliferation of sophisticated weapons, be they nuclear, biological, or chemical, exotic weapons, high tech weapons, what used to be a low threat/high probability is now becoming a high threat/high probability. I am talking about the Third World. We have some really crazy people who don't like the way we do business. They are going to say okay, they're going to cut off the oil, cut off our sea lines of communications, and sooner or later the Navy and Marine Corps are going to be asked to do something about it. If you are not there, it takes you a long time to get there. If you have the carrier and the amphibious group there together, you can do whatever you want. You can go in and do neoops, that's where you go in and rescue Americans from a hostage situation. Or you can do like we did in Libya, and strike whatever target you assign us.

SOVIET/THIRD WORLD THREAT

Chairman NUNN. How much is the change in the Soviet naval activity in the Atlantic? How much change have you noted there? We have gotten that from intelligence. But I just wonder how you plug that into your thinking.

Admiral DUNLEAVY. There has been a reduction in their area of operations, both surface and subsurface, in the last few years.

I have spent the last 4 years in the Atlantic Fleet, and over that period of time I have seen considerable changes in historic deployment patterns. They do their deployments less frequently now down to Cuba with their Bear aircraft.

So there has been a gradual retrenchment. But the things they are scrapping is all old stuff. They still have the capability to come at us. Their capability is there. Maybe their intentions have changed. But they have the capability to come out any time they want.

Chairman NUNN. How do you take that into account in planning your force structure? Do you believe any reductions are justified, based on the decreased Soviet presence in those areas and the increase in what we call the Soviet move toward more of a defensive posture?

Admiral DUNLEAVY. Senator, I have never really been concerned about going against the Soviets head-to-head. But I have been concerned about Soviet weaponry.

If you look at the recent past, over the last 20 years, every 18 or 24 months we are involved in combat, and it has been by Soviet weaponry, French, American—never directly against the Soviets, but it has often been the weaponry they exported. Now we have all kinds of different countries—forget about the Soviets—all kinds of other countries producing weapons that are being sold to other people who, historically and from the looks of things, aren't going to get any more friendly with us. I am talking about the fanatics, the emerging nations, the religious groups, the whole 9 yards that may just decide to do that. I am concerned about what we're doing in the way of saying we ought to cut back and cut back and cut back.

The Navy/Marine Corps should stay strong because we are the ones who will be able to answer the mail because we will be on station if we are allowed to be on station. Again, it is the Third World.

Chairman NUNN. Are you saying that all these years it has been the Third World that has been driving 14 carriers?

Admiral DUNLEAVY. Oh, no. That's only part of it. That's only a part of it.

Chairman NUNN. Well, it sounds to me that's what you're saying. You said you never were concerned about the Soviets. I realize the Third World has always been a part of it. But I am just trying to quantify this. I have always been under the impression that most of our carriers have been aimed toward the Soviet threat. That has been my impression for years here. I mean, we have been seeing charts of the Soviet Navy, the Soviet deployments, the Soviet threat, the Soviet submarine progress, the Soviet merchant ships, the Soviets this, the Soviets that, and the Soviets

start drawing back and all of a sudden you say well, we were never worried about those guys.

Admiral DUNLEAVY. I was speaking personally, that I have always been concerned about other weaponry, Soviet included, coming at us through the Third World. You can go around the entire spectrum, from North Korea down through the Straits of Malacca up into the Indian Ocean.

Chairman NUNN. You're saying that that threat has not diminished?

Admiral DUNLEAVY. In my personal opinion, no, sir.

Chairman NUNN. Okay. I would generally agree with you on that. The question is what can we prudently reduce because of the reduced Soviet threat? As I understand it, you are saying nothing.

Admiral DUNLEAVY. Well, you have to balance it. What I am concerned about is the people factor, and that is if we are going to maintain the forward deployment, which I feel we should because of the other areas of the world that always pop up. I mentioned the four hubs—the Western Pacific, the Indian Ocean, the Mediterranean, and the Caribbean—where we, really, with the Marine Corps team, are on a regular deployment almost on a continual basis, depending on how things are heating up.

If we are to give our sailors and marines some kind of home life, then you have to have a rotation base where you give them, if they are on sea duty, 50 percent of their time in homeport if they are back from a deployment, if they are gone for 6 months. That is a given. If we drop down and don't change our commitments and don't change our deployment policies, that means that we are going to be back up to the 8, 9, and 10 month cruises, and, as the Senator knows——

Chairman NUNN. Yes, I do. But those are a couple of big "ifs" though. That is the question I am asking you. How much deployment policy can we change and how much requirement can we change? If you buy those two assumptions, you buy everything. That's the question. How much can we change our deployments, how much can we change our operating tempo, how much can we change the size battle group that we have out there? Presence does not require a whole battle group.

Admiral DUNLEAVY. It requires air power. You have to control the air and the sea.

Chairman NUNN. The battle group has generally been sold on the basis of a complete type, self-contained unit, to contain the Soviet threat and project power at the same time. Now you are saying that the Soviet threat has gone down and you are also going to have the same requirement, the same number of ships, the same battle group to attack Libya that you do to defend off a Soviet fleet? But Libya does not have that kind of threat. To attack Libya does not require that kind of power. It may require Navy ships. It may require a carrier. But it does not necessarily require a whole carrier battle group.

Admiral DUNLEAVY. But how do you know what the threat is going to be until you are there? The danger I can see, and I'm really looking at it hard, is that any drawdown must be done in a very logical manner. But to just do it precipitously, without giving

some good, solid analysis over a period of time, I feel, personally speaking, that it is very, very dangerous.

Chairman NUNN. I guess what I'm telling you all is you had better start the analysis because if you don't, based on what we already know is coming down the pike in terms of the cuts we are going to have to make—the Senate Budget Committee just came out this morning with $13 billion in outlay cuts—if we don't get help from the Navy, we are going to have to make the judgments ourselves. So far, we have gotten no help from the Navy. By this I mean no suggestions about where we can look for cuts.

It's not a question of whether it is going to happen. The question is whether we are going to have some guidance in trying to do it in a prudent way that does maintain that Third World capability and maintains the ability of our forces in the Navy to get some back-home time. We recognize that. You are absolutely right on that.

We're going to have to have some guidance. Somebody had better go to the drawing boards over there, or you'd better get up here and convince the Budget Committee and half the Senate that you have to have a lot more money than what they are going to give us. I am for some cuts. I am not in favor of the cuts that they are talking about. And they are talking about big, big cuts now.

Somebody had better go back and see what the threat presentation was 2 or 3 years ago and look at how much the threat presentation counted on the Soviet presence. Unless my memory is very bad, the Soviet threat drove a whole lot of what the Navy deployments were. Now that does not mean the threat has disappeared. It hasn't. That does not mean the Soviets can't go back to an operating tempo higher than they are going to now. They can. But we also have more warning time.

The Navy is going to have to get into a posture where you utilize that warning time. You are saying that the Soviets can come steaming out any time they want to. Well, if they can, we have to figure out how we can. We have to be able to have some ships in reserve that we can pull out, that are not mothballed.

Admiral GENTZ. Part of our strategy in the days of the 600-ship Navy was to ensure that we kept the Soviet Union in home waters because of the difficulty in their transits. You have to have the ability to be there at the time to do that, which means that you have to get underway before they do and be close to maintaining a presence. In today's environment, in the Third World, in the Mediterranean—for example, and I am speaking out of my element now since the last time I was on the 6th Fleet staff was some years ago. You want to have the ability to project enough power to a Third World nation which has the capability in MiG–29s and SU–27s, plus in most cases conventional submarines, and to do that with a minimal amount of attrition, and yet show that presence.

The force structure that is shown up there (indicating), and you may say serendipitously, happens to be that force structure which we have had to utilize over this long period of time at the same time our primary strategic concerns were the Soviet Union. As we look back now, while we were justifying force levels on the Soviet Union as the adversary, what we were really doing was, as Admiral Dunleavy indicated, fighting them through the surrogates.

Now, they are armed and potentially dangerous enough that they could do that without that help.

Admiral DUNLEAVY. Right now, Senator, I would be more concerned about going against Syria than directly against the Soviet Union. Syria's integrated air defense, in-depth, very well-coordinated—a lot by the Soviets, would be a hard one.

Chairman NUNN. I'm going to look back to see if that testimony was anywhere in the record in 1989, 1988, 1987, 1986, 1985, or 1984, because it seems to me we are just hearing that concern now. I don't think there has been that radical a change in Syria's posture in the last 6 months.

Admiral GENTZ. The world went on while that was going on, Senator, as you know, and we were there participating. Clearly you want to be able to handle the worst possible threat.

Chairman NUNN. What are the other threats? You named Syria and that is certainly a possibility in certain circumstances. What are the other threats, non-Soviet?

Admiral DUNLEAVY. North Korea. Every once in a while they do their thing over there, either with the tunnels under the DMZ or do some other crazy things. They are very unpredictable.

I'm a history buff and I'm very, very concerned with the state of the world right now. I can see that it's like 1914. For 45 years we mostly had a bipolar world. Now we have a multipolar world. It is developing that way. I am concerned about mostly North Korea and that situation over there; about the thing that could happen in Cambodia if the Chinese continue their efforts in helping the wrong folks down there. I am concerned about what is going to happen with Iran/Iraq. That goes back and forth. Right now, it is not too bad. In the Mediterranean, there is Israel, Syria, Egypt, and Libya. Down in the Caribbean Basin, I am concerned about what is going on, not only with drugs, but also with other things that could adversely affect our way of life. You can almost go around the entire world periphery and be concerned about what could happen and the Soviets really don't play in that, that much.

Chairman NUNN. Well, if you just take the Indian Ocean there, to talk about 7.6 battle groups, carrier battle groups, as I compute it, if you are talking about the amount of money we are spending so that we can get it into some perspective, just on the Indian Ocean, it's 7.6 battle groups. It's 8 carriers, that's about $28 billion. There's 48 destroyers—and correct me if any of these numbers are wrong—that's $30 billion to $40 billion. There's 16 submarines, $15 billion to $20 billion. There's 800 combat aircraft, $150 billion to $200 billion. There's $200 billion to $300 billion that we've allocated to meet the Indian Ocean threat. Now that does not count operating costs. Do you think the U.S. vital interests have been calibrated to that extent, to that amount of investment? I don't know what the operating cost is, but I am sure it is very large.

Admiral DUNLEAVY. I'll come back to you later with the figures on that, Senator.

[The information follows:]

Below are the annual operating and support (O&S) costs for a carrier battle group. The costs include half-year funding for fuel, consumables, repair parts, depot level repairables, organizational, intermediate and depot level maintenance, and military personnel:

	SHIP TYPE	COST ($000)
1	Nimitz Class Carrier	$79,789
1	Carrier Airwing	70,809
1	Guided Missile Cruiser (CG)	11,170
2	Destroyers (DD)	19,590
1	Fast Combat Storage Ship (AOE)	15,711
2	Helo Detachments	1,280
		$198,349

O&S cost data provided above is based on fiscal year 1991 dollars and half-year funding for the platforms indicated. Half-year funding is used to represent a 6-month deployment in the Indian Ocean. Maintenance costs included above are based on a class average cost per year for ship and aircraft maintenance cycles and do not represent actual budgeted costs for any specific platforms.

Again, we, the American people, have to decide whether or not that particular part of the world and what it gives the Free world is worth that cost. On a continuing basis, to maintain the carrier battle group up there, your figures are probably right on. But, you know, if 46 percent of our oil is imported, I don't know how much of it is from that particular area of the world, but I do know that over 70 percent of the Japanese oil comes out of there—in fact, I think it is closer to 90 percent now. That is a critical sea line of communication. When I was over there on the Coral Sea, every 10 miles there was a supertanker coming out. One would take up a heading of 140, heading for the south tip of India; another would take a hearing of 210, heading for the Madagascar Straits.

Chairman NUNN. The place where it is most vulnerable is the Persian Gulf. You can't even get a carrier battle group into the Persian Gulf.

Admiral DUNLEAVY. But my airplanes can get in there if I want them.

Chairman NUNN. Land-based air can do that, too. We can fly B-1s over.

We're going to have to start weighing these things. I am not suggesting that there is any easy trade-off here, but we are going to have to weigh it.

We talk about $50 billion to go on the B-2 program. That's a lot of money, no doubt about it. Nobody talks about a $200 billion or $300 billion investment simply for the Indian Ocean in a carrier battle group. How much is a B-2 operating cost? How much is a carrier battle group operating cost? We have to start asking these questions, "we" being all of us, you all, too. We have to be guided by you because you are the experts.

You make a lot of valid points here. I certainly am not in any way saying that all of them are rebuttable. But what I am just trying to say to you is that it's a different day, it's a different era, it's a different time, it's a different threat. The Navy has to take that into account. We all do. We are going to be making some very

unpleasant decisions here—unpleasant for us and unpleasant for all of you.

Senator Levin, excuse me for taking that much time. Thank you, gentlemen.

CARRIER BATTLE GROUP OPTIONS

Senator LEVIN. Thank you. I have just one quick question on the chart that you have up there. If there were two carriers, two groups removed, what are the options as to where they'd be removed? What is the likely reduction?

Admiral DUNLEAVY. Do you mean where wouldn't I put them?

Senator LEVIN. Yes. Where would you make the cuts? I know you are looking at that now as an option. But where are some of the options that you are looking at?

Admiral DUNLEAVY. Where they would be put is above my pay grade. That would be the JCS that would make that decision as to where to put them. Our option would be either they are not going to go there or they will have to be extended on a cruise, and that drives us back up to the 8-, 9-, 10-month cruises, which draws us into the death spiral of keeping our people, which is by far the most important thing we have to be concerned about. That is the hard one.

Senator LEVIN. If there were going to be some reductions in the three theaters, where is the most likely reduction to come? Do you know?

Admiral DUNLEAVY. Again, we as the American people have to decide that. Do we want to write off the Indian Ocean?

Senator LEVIN. I'm not saying to "write off." Say you reduce 7.6 to 6.6. That is not quite writing it off. It means you might not have one there on station all the time.

Admiral DUNLEAVY. If it just happens to be the wrong time, you've written it off.

Senator LEVIN. Well, you've taken a risk. You are not writing it off. That's a little different. There are some risks now because you had 16 carrier battle groups on one of your charts. That would be the ideal. Didn't you have 16 on one chart?

Admiral DUNLEAVY. The ideal, the utopia, the great life I think we all would dream about is 22 carriers.

Senator LEVIN. But I think you said the requirement was 16—I'm sorry, 15.

Admiral DUNLEAVY. That's a JCS requirement that has been talked about for years.

Chairman NUNN. How many?

Admiral DUNLEAVY. That's 22.

Senator LEVIN. But 15 was the requirement, I believe.

Admiral DUNLEAVY. Yes, sir. We were down to 14 for affordability. Secretary Cheney made that decision last year, when we decommissioned the *Coral Sea.*

Senator LEVIN. I understand that. But we are taking some risks if we have less than 15.

Admiral DUNLEAVY. Yes, sir.

Senator LEVIN. That doesn't mean that we have written anything off. It means we are willing to take some risks.

Admiral DUNLEAVY. I agree.

Senator LEVIN. And you went from 14 to 12, that doesn't necessarily mean you are writing something off. It means you are willing to take certain risks. You indicated a couple of times that nuclear ships aren't allowed through the Suez at times. Do we put our conventional carriers into the Indian Ocean?

Admiral DUNLEAVY. We do both.

Senator LEVIN. How many conventional and how many nuclear? Do you know what the breakdown is, off-hand?

Admiral DUNLEAVY. It's eight and six right now.

Senator LEVIN. Eight and six. Eight are?

Admiral DUNLEAVY. They are conventional going up to eight nukes and coming down on conventionals.

Senator LEVIN. If we just used the conventional exclusively in the Indian Ocean, plus whatever nukes we needed, that way all of the conventional could go through the Suez. Would that change that 7.6 figure at all?

Admiral DUNLEAVY. I'm not smart enough to answer that from the top of my head, but I would say no.

Senator LEVIN. Okay.

Admiral DUNLEAVY. But, you see, you are tying the operational commander's hands when you say I have to use that type ship. From a warfighting point of view, with the exception of dash speed, the conventional and nukes are the same. So both of them have equal capability of inflicting power.

Senator LEVIN. That is my point.

Admiral DUNLEAVY. It is the flexibility of the nuclear power that you can go at 30-some-odd knots for an indefinite, for an infinite period of time, really. That gives you the flexibility, not necessarily as a battle group commander, but as a force or a fleet commander. I can move fast, quietly, and alone.

Senator LEVIN. Can you let us know if you used the conventional exclusively in the Indian Ocean so we could take them all through the Suez and just supplement it with whatever nukes we had to to keep a presence of one, whether that figure would look different? Would you let us know for the record?

Admiral DUNLEAVY. The danger of that is you are going to tell me always use conventional—oh, I'll do it. But also, if Egypt decides just to shut down the "gut," there goes your flexibility again, no matter what you have.

Senator LEVIN. Then we have to use other options at that point.

Admiral DUNLEAVY. Then you have to drive 28 days.

Senator LEVIN. Yes. We have to use certain options at that time. Remember, we would have them there. I mean, obviously there is a risk that Egypt is going to suddenly go to war with us. There are a lot of risks, I guess. But that is pretty unlikely. You have to weigh the likelihood of the risk. Has Egypt ever closed the Canal since Nasser to a conventional aircraft carrier is the question, I guess? If they have not, it is not a big risk. But just so that we can assess risks, I would like to see that from you.

Admiral DUNLEAVY. Yes, sir. Got it.

[The information follows:]

Using conventionally powered aircraft carriers exclusively in the Indian Ocean would reduce the number of carriers required by Commander in Chief, Pacific Fleet

(CINC-PACFLT) by allowing use of Commander in Chief, Atlantic Fleet (CINCLANTFLT) assets via the Suez Canal. In order to accomplish this, the fleets' carrier composition would have to be drastically changed (CV/CVN split, heavily weighted toward CVs on east coast and CVNs on west coast). Note, use of the Suez Canal for carrier transits under all circumstances is not guaranteed.

While support of this nature has been done periodically in the past to help short term imbalances in the fleets carrier assets, to do this composition tailoring would also require significant changes to in-place maintenance support and logistical structure in CONUS as well as outside CONUS. This would be difficult to do in the short term and would only optimize this one area of responsibility to the detriment of the other areas in which the Navy is tasked to operate.

Senator LEVIN. Thank you. Mr. Chairman, anything else?

Chairman NUNN. No, thank you.

Senator LEVIN. Gentlemen, thank you. We appreciate your testimony. The record will stay open for the questions that I have indicated and for questions from other Senators. We will stand adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR ALAN DIXON

COMMONALITY

Senator DIXON. What is the status of the Navy's efforts to ensure a maximum degree of commonality with the Air Force on next generation aircraft programs?

Admiral DUNLEAVY. The Navy and the Air Force are striving for the highest degree of commonality on the A-12/ATA and the ATF/NATF programs. Commonality is a major consideration at every stage of development for both aircraft and is supported at the highest levels of the Navy. An example of the commonality efforts of the Navy and the Air Force is the Joint Integrated Avionics Working Group (JIAWG) which is successfully gaining a high degree of avionics commonality on next generation aircraft. The commonality between the Navy A-12 and the Air Force ATA is extremely high with changes only for refueling and a weapon's targeting technique in the ATA. Commonality for the Air Force ATF and the Navy ATF is less. The Navy must accommodate changes for carrier suitability and Navy unique missions. However, the NATF will use the same engines as the ATF, share a large number of subsystems, and utilize the same avionics except where mission requirements dictate differently.

Senator DIXON. I understand that Secretary of the Navy Garrett indicated last year that the Navy's version of the ATF (NATF) will be different than the Air Force's due to the need for a stronger airframe. However, he has evidently estimated that the two services can achieve up to 60 to 70 percent commonality in areas such as avionics and engines. Does this continue to be the Navy's position on commonality between the ATF and the NATF? Why can't we get the percentage higher?

Admiral DUNLEAVY. The degree of commonality between the ATF and the NATF is an estimate and will continue to be until the ATF variant design is finalized. However, the Navy and the Air Force will have virtually 100 percent commonality with the engines, and we are striving for the highest degree of avionics commonality. The Navy will be able to utilize almost all of the USAF avionics package, but we will have to add to that package to accommodate Navy unique equipment such as the Automatic Carrier Landing System (ACLS).

Senator DIXON. Will Secretary Cheney's decision to delay procurement of the ATF and the NATF diminish or improve the amount of commonality we can expect?

Admiral DUNLEAVY. Secretary Cheney's decision to delay procurement of the ATF and the NATF may improve the degree of commonality between the ATF and the NATF. While it will allow the services more time to improve commonality, the policy and goal of the two services have always been and will continue to be to maximize commonality between the two variants.

Senator DIXON. Secretary Cheney also said in his testimony last week that the decision to delay production of the Air Force's ATA, "will not affect our plans to maximize the commonality between the Navy and the Air Force programs." Given that the Navy is going to be moving ahead with the companion program—the A-12—how are you going to ensure that this objective is achieved?

Admiral DUNLEAVY. The USAF has expressed complete satisfaction in the Navy's A-12 program and envisions very few changes to the baseline A-12 aircraft. To monitor the Navy's progress and maximize opportunities for further commonality, an Air Force liaison officer was assigned to the A-12 program office several years ago and an Air Force test pilot will participate in the developmental test and evaluation. This direct, hands-on participation will allow the Air Force to keep in touch with the detailed evolutionary changes in the A-12 baseline aircraft.

Senator DIXON. Given that Secretary Cheney has decided to slip the ATA, ATF, and NATF, could you please elaborate on why the Navy is not delaying the A-12?

Admiral DUNLEAVY. The A-12 will begin replacing the 28-year-old A-6 Intruder as the Navy's only day/night, all-weather long range carrier attack aircraft in 1994/1995. At a production rate of 36 A-12s per year, the A-6 will still be required to deploy until 2005, when the basic design will be 43-years old. Accumulated wing and fuselage fatigue will require relatively large numbers of aircraft to retire in the late 1990s. All these factors combine to make the A-12 a mandatory force modernization requirement that cannot be delayed.

HARRIERS

Senator DIXON. In your statement on page 13, you point out that the AV-8B is in the last year of a 3-year multi-year procurement. At the end of fiscal year 1991, the Marines will have 276 of the 323 aircraft for the Active force. The Marines will be short 47 Harriers. How many Harriers do the Marines plan to buy for their Reserve forces?

General PITMAN. Our current plan does not include procurement of Harriers for the Marine Reserve.

AH-1W

Senator DIXON. Your statement speaks to the Marine Corps need for the AH-1W aircraft in the Active forces and in the Reserves. Why in your fiscal year 1991 budget request are there no monies for reserve AH-1Ws?

General PITMAN. Our requirement for AH-1Ws in the Active and Reserve components is well-established, and that requirement remains a high priority. The priority for Reserve AH-1Ws was not sufficiently high within the Department of the Navy to continue procurement in fiscal year 1991.

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

NAVAL AVIATION

Senator GLENN. For the last few years Congress has been critical of naval aviation in general, citing lack of long-range planning, shortfalls in combat aircraft, aging aircraft beyond acceptable levels, and severe reductions in aircraft modification accounts. Now the services are facing even greater budget cuts across the board. Would you give us your assessment on the current status of naval aviation and the prognosis for the foreseeable future?

Admiral DUNLEAVY. Effective long-range planning is only as good as one's ability to foresee the future. If our planning is inadequate it is not for a lack of trying. As you can appreciate, even the best of plans can go awry when the forecast is inaccurate, and our's has been. No one anticipated the dramatic turn of events that we have recently witnessed in the Soviet Union. Nor did we expect the precipitous decline in defense spending that we are currently experiencing. We are not immune from the debate that swirls around us on the composition and future employment of our Navy. Until such time as some key questions are answered and the fiscal picture begins to take form, we can only reaffirm what we believe our future role should be and plan our forces accordingly.

Senator GLENN. For the last few years Congress has been critical of naval aviation in general, citing lack of long-range planning, shortfalls in combat aircraft, aging aircraft beyond acceptable levels, and severe reductions in aircraft modification accounts. Now the services are facing even greater budget cuts across the board. Would you give us your assessment on the current status of naval aviation and the prognosis for the foreseeable future?

General PITMAN. Insofar as Marine aviation is concerned, we remain healthy except for our medium assault helicopter force. To maintain our position, we must continue to procure in-production aircraft. We embarked several years ago on a

plan to reduce our aviation force to fewer type/model/series aircraft, and that plan is well under way.

Replacement of the CH-46, our only medium assault aircraft, remains our top priority. Termination of the V-22 program has, without question, caused a significant delay in fielding a replacement in that critical mission area. We continue to search for an acceptable solution to this problem.

We also continue to pursue an aggressive but realistic program of modifications to our existing aircraft to enhance their mission effectiveness. Those modifications are directed primarily at improvements to night and adverse weather capabilities and include both fixed wing and rotary wing aircraft.

With regard to the foreseeable future, our modernization plan is a realistic one. We will continue to pursue reductions in the types of aircraft in our inventory, and we will continue to modify aircraft in lieu of procurement where it makes good economic sense without sacrificing warfighting capability. With the exception of medium lift rotorcraft and fixed wing attack aircraft, our current force will carry us into the early years of the next century.

V-22

Senator GLENN. Because of your extensive combat experience in helicopters and your involvement in the planning and execution of long-range special operations force (SOF) missions, you are uniquely qualified to give this committee your professional opinion on the potential value of the V-22 to the Marine Corps and SOF missions—as well as Army, Air Force, and Navy missions using helicopters. Will you give us your assessment of the potential operational effectiveness of the tiltrotor V-22, and compare it with the potential effectiveness of rotorwing aircraft?

General PITMAN. We have been debating the advantages of tiltrotors over helicopters for some time now, and I think those advantages are well-established. The tiltrotor attributes that come immediately to mind are the advantages in speed, range, payload, and survivability. A number of studies have shown that the helicopter simply cannot compete with tiltrotor technology in those categories, and those are the characteristics that define operational effectiveness in a combat aircraft.

Helicopters represent a vast improvement over other means of transportation in a combat environment, but we have learned that helicopters also have some distinct disadvantages on the modern battlefield. In essence, helicopter technology has nearly run its course, while we have not yet begun to scratch the surface on tiltrotor capabilities. We can build helicopters that lift big payloads, we can build helicopters that are survivable, and we can build helicopters that can go long distances, but we cannot combine all of those attributes in a single helicopter that would be operationally useful. Insofar as speed is concerned, our modern helicopters have reached their practical limits, and without that speed, survival on the modern battlefield is significantly reduced.

Preliminary results of the V-22 cost and operational effectiveness analysis show that the tiltrotor is operationally effective in every mission area evaluated. Depending on the specific mission, a tiltrotor is from 1.3 to 6 times more operationally effective than a helicopter alternative.

Senator GLENN. I understand that the congressionally-directed cost and operational effectiveness analysis you refer to in your statement has been completed and is being briefed within the Pentagon. What are the results of IDA's analysis—what are their conclusions and recommendations?

General PITMAN. I have not had an opportunity to review the entire analysis, but I have received an executive summary of the preliminary findings. Those findings show that the V-22 is 1.3 to 6 times more operationally effective than the helicopter alternatives. The findings also indicate that the V-22 is less costly over the life cycle than the helicopter alternatives.

The final report has not been released, so I am unable to comment on what conclusions may have been drawn or what recommendations have been made.

A-12

Senator GLENN. Secretary Cheney told this committee last week that 620 A-12s will cost $51.96 billion in then-year dollars. I must admit to some degree of "sticker shock" and would appreciate it if you would try and put this cost in perspective. What were some of the detailed findings in the Department of Defense major aircraft review that supported procurement of the A-12, especially cost, schedule, and performance?

Admiral DUNLEAVY. The Department of Defense analyzed several alternative aircraft proposals, including a new production A-6, an upgraded F/A-18 (Hornet 2000),

and a multi-mission upgrade to the F-14 (Super Tomcat 21). None of the alternatives to the A-12 had adequate survivability against current and projected threats. Attack aircraft can expect to encounter sophisticated air defenses in a variety of situations including regional contingencies. Soviet and non-Soviet regional air defenses are already formidable and will improve. Both air defense fighters and surface-to-air missiles are undergoing substantial modernization. Major findings for each of the alternatives were as follows:

—the F/A-18 derivative Hornet 2000 was significantly less expensive, but was rejected because it could neither meet the mission requirements in range and ordnance payload nor was it effective against the projected threat.

—the F-14 Super Tomcat was rejected because, while its acquisition cost was approximately the same as the A-12, it was much less effective in meeting mission requirements or the projected threat.

—several A-6F/G force alternatives were analyzed, but all were rejected because none was survivable against the projected threat, and because of the considerable cost and time delays inherent in restarting the A-6 production line, and last because of the very low remaining A-6 wing and airframe life. The current A-6 inventory is well below airwing requirements. Of the A-6s, 5 percent are currently grounded and 27 percent are restricted to 3Gs because of severe wing fatigue problems. While about half the A-6s will receive new composite wings, they all will still face retirement by 2008 due to expended fuselage service life. There is no viable alternative to extend the life of the current A-6 force.

A matrix of production rates and total A-12 quantities was analyzed for cost effectiveness and force requirements. It was determined that a peak annual production rate of between 36 and 48 A-12s would be affordable and would also facilitate an acceptable A-6 retirement schedule consistent with carrier airwing medium attack force requirements. A peak A-12 production rate of 36/year will be achieved in 1994 with a total Navy program buy of 620 aircraft.

Senator GLENN. What is the current status of the A-12 development program? Is the Air Force serious about procuring the ATA variant of the A-12?

Admiral DUNLEAVY. The A-12 development program is currently in the 29th month of full scale engineering development (FSED). Technical performance, as verified by extensive test results, meets critical program requirements, and in several key cases, exceeds requirements (e.g., range, payload, speed, and signature reduction). One area that the Navy and our prime contractor team of McDonnell Douglas and General Dynamics have focused on and devoted considerable attention and effort to has been weight control. While weight itself is not a performance requirement, it is an indicator and can influence several operational characteristics. To the credit of the engineers, solutions such as aerodynamic and propulsion modifications have been developed to ensure that the A-12 will satisfy specified performance requirements, despite the fact that the weight estimates have shown growth.

The Air Force leadership has repeatedly reaffirmed their commitment to the ATA program variant of the Navy A-12 in testimony before Congress. The USAF ATA System Project Office (SPO) was established in January 1988 at Wright-Patterson AFB with a staff of 40 officers and, to date, has spent $37 million in RDT&E funds. And an Air Force liaison officer has been permanently assigned to the staff of the Naval Air Systems Command A-12 program office. The decisions resulting from the major aircraft review slid the procurement start of the ATA to fiscal year 1998 at the earliest. Further questions regarding the Air Force ATA program should be directed to the Air Force.

ATF/NATF

Senator GLENN. In your statement you indicated that, "the Navy is fully committed to the ATF program." I am sure you remember the problems the Navy had in trying to develop the joint service TFX aircraft. In this regard, I would like to ask if you believe that the Navy and the Air Force can now develop an aircraft that will be operationally suitable for both services?

Admiral DUNLEAVY. The Navy and the Air Force can each build a variant of the ATF that will meet the needs of the individual service. The key to success will be that each service will build a variant and maximize commonality where it makes sense. The goal of the TFX project was commonality almost at all costs. With the ATF/NATF, the two services are striving for commonality wherever possible, but where it makes more sense to diverge, we will not have commonality. As long as we keep this balanced approach, I think both the Navy and the Air Force can build a successful fighter that will meet each service's needs.

Senator GLENN. Will the current DEM/VAL program provide enough information to determine the suitability of the NATF?

Admiral DUNLEAVY. The DEM/VAL program will give the Navy the information it needs to determine the suitability of the NATF. Prior to source selection, the necessary carrier suitability wind tunnel testing and data analysis will be completed for full participation in source selection. The remainder of the DEM/VAL after source selection and prior to entry into FSED will complete the required data.

ATF/NATF MULTI-MISSION ROLES

Senator GLENN. Do you believe that the ATF should be a multi-mission aircraft rather than a single-mission air superiority fighter?

Admiral DUNLEAVY. I believe very strongly that the NATF should be a multi-mission aircraft. The deck space on the aircraft carrier is very limited and is not going to get any larger. Consequently, all future Navy aircraft must have the ability to perform more than one mission to maximize the finite number of aircraft assigned to an aircraft carrier.

NAVY FORCE STRUCTURE

Senator GLENN. Although Secretary Cheney would not actually confirm that current POM planning reflects 12 carrier battle groups rather than the current 14, the implication was clear that a reduction to 12 carriers was being seriously considered. If the fiscal years 1992-1997 POM supports only 12 carriers, what impact, if any, will that have on what this committee does in fiscal year 1991 regarding the number of Active and Reserve air wings, number and type of aircraft procured, modification/spare parts accounts, etc.?

Admiral DUNLEAVY. It would be inappropriate for me to speculate on that subject. We are still anticipating the requirement for 14 carrier battle groups and have geared our plans to that requirement.

Senator GLENN. As I understand it, the number of deployable carriers is determined by forward deployed requirements (commitments) established by the combatant commanders—not the Navy. Is this a correct understanding, and if so, will the combatant commanders have an input before the number of deployable carriers is reduced?

Admiral DUNLEAVY. Your understanding is essentially correct. The JCS, in conjunction with the CINCs, provides the forward deployment requirements. Their stated requirements will be solicited and seriously considered prior to any final decision on this matter.

JOINT PROGRAMS

Senator GLENN. I remain skeptical about the success of any major joint service acquisition program, even between the Navy and the Marine Corps. I have already addressed the ATF/NATF and the A-12/ATA in separate questions, but let me cite some additional examples. First and foremost is the V-22. Here is a potential joint service force multiplier program that so far has been squandered. Now, after 10 years, the Air Force is backing out of the ASPJ, and after nearly as long developing the AMRAAM, I see in the media that the Navy wants out of this important missile program (I hope this report is false). It is my opinion that the services are going to need joint programs to maximize scarce resources—otherwise they will get nothing. How would you respond?

Admiral DUNLEAVY. The theory behind joint procurement is sound, and I support it. In executing joint programs, we must be responsive to service-unique requirements and ensure that we don't sacrifice our warfighting needs for the sake of commonality.

Senator GLENN. I remain skeptical about the success of any major joint service acquisition program, even between the Navy and the Marine Corps. I have already addressed the ATF/NATF and the A-12/ATA in separate questions, but let me cite some additional examples. First and foremost is the V-22. Here is a potential joint service force multiplier program that so far has been squandered. Now, after 10 years, the Air Force is backing out of the ASPJ, and after nearly as long developing the AMRAAM, I see in the media that the Navy wants out of this important missile program (I hope this report is false). It is my opinion that the services are going to need joint programs to maximize resources—otherwise they will get nothing. How would you respond?

General PITMAN. I agree that all of the services are going to have to take a hard look at their requirements to determine whether joint development is a reasonable

alternative to single service programs. My experience shows that joint programs can work, and they have worked.

We must keep sight of the fact that ours is a requirements-based system, though, and that what might be a high priority for one service might be a low priority for another service, depending on mission requirements. Operating environments also have a significant impact on individual weapons systems.

As an example, the Air Force and the Army do not design their aircraft for shipboard use because their missions do not require them to operate in that environment. Thus, the basic design of a Navy aircraft will differ from that of an Air Force aircraft or an Army helicopter. Weight, corrosion resistance, handling qualities, and susceptibility to the harsh electro-magnetic environment aboard ships dictate different design solutions for aircraft that are not routinely subjected to the rigors of operations at sea. This also carries over to the particular weapons and subsystems employed on those aircraft.

While I agree wholeheartedly with the concept of joint service programs, I think we must continue to be careful in our approach to such programs. We must resist the tendency to reduce combat systems to the lowest common denominator and to reach a solution which is not operationally effective in its intended role.

DESIGNATED NIGHT CAPABLE SQUADRONS

Senator GLENN. In your statement you talk about the importance of giving the AV-8B, F/A-18, AH-1W, and CH-53 an improved night capability. Will all of these aircraft eventually have the night capability or will the Marine Corps have to have designated night capable squadrons?

General PITMAN. Our current plan incorporates the night enhancements on all of our rotary wing aircraft and as many of our fixed wing aircraft as we can forward fit. We are conducting operations routinely at night and, to a lesser extent, in adverse weather. The enhancements will provide an increased level of mission capability, and they will increase safety margins through reduced pilot workload and improved situational awareness.

Our current plan calls for two squadrons of night capable AV-8Bs and three squadrons of night capable F/A-18s.

PROGRAM UPDATES

Senator GLENN. What is the latest status of the V-22 flight test program; T-45 development and flight test program; and P-7 development program?

General PITMAN. The V-22 test program is proceeding very well, with four of the scheduled six test aircraft flying on a routine basis. The four aircraft have accumulated more than 150 flight hours in over 150 flights. The aircraft have demonstrated speeds up to 280 knots, altitudes to 10,000 feet, acceleration loads up to 2.3 Gs, and single engine flight and stalls. By late summer or early fall, the test schedule calls for achieving speeds over 345 knots and acceleration loads of 4 Gs. The test program has been extremely successful, and it continues to meet or exceed all expectations.

Admiral DUNLEAVY. The T-45 training system (T45TS) is in the latter stages of full scale engineering development (FSED) and early production. Two T-45A "Goshawk" test aircraft have been delivered to the Navy and have accumulated nearly 600 flight hours in support of the flight test program. T45TS-related construction is complete at NAS Kingsville, Texas and the first production visual simulator, training integration system (TIS), and academics will be delivered early this summer. Deficiencies in T-45 performance discovered during early flight testing are being corrected, and verification of these corrections will occur prior to release of fiscal year 1991 funding. To date, modifications to the baseline aircraft to correct deficiencies include the addition of a higher thrust engine, modified rudder, central ventral fin, and speedbrake/elevator interconnect. Additionally, a decision has been made to install movable leading edge slats to alleviate adverse stall characteristics.

The P-7A program is in the second year of full scale engineering development. On 15 November 1989, Lockheed Aeronautical Systems Company (LASC), the prime aircraft developer, in a public declaration and discussions with NAVAIR, notified the Navy of design, schedule, and cost problems in the P-7A development program. Lockheed's initial estimate is that development costs will exceed the ceiling of the current fixed-price incentive contract and that approximately 2 years will have to be added to the current development schedule. Lockheed announced a $300 million write-off in the fourth quarter 1989 related primarily to the development phase of the P-7A. Lockheed believes the primary cause for the magnitude of these losses was the lack of contractor anticipated commonality between the P-7A and the P-3C. This reduced commonality increased the Lockheed design effort and the re-

quired Lockheed aircraft demonstration testing, leading to higher development costs. The Navy's intention is to proceed with the present contract to build the P-7 airplane. The Navy and Lockheed have been working to restructure a program that will meet all requirements and remain within present contract bounds. This program will be presented to the Defense Acquisition Board (DAB) this summer.

MANPOWER

Senator GLENN. Admiral Dunleavy and General Pitman, your statement indicates that the aviation continuation pay and aviation career incentive pay improvements in last year's authorization act appear to be successful, and I strongly agree. I have heard similar reports from both the OSD and the other services. In fact, the Assistant Secretary of Defense for Force Management and Personnel, Christopher Jehn, sent a letter to the committee addressed to Chairman Nunn and Senator Warner on this subject dated April 17, 1990, some 2 weeks ago. (Mr. Chairman, I ask that the letter, less enclosures, be made a part of the record.) In the letter Mr. Jehn states, and I quote:

"We estimate that over 300 pilots remained in service who would have left without the bonus; when contrasted with a jet pilot's initial training cost of at least $1 million, the bonus investment of $55 million was a bargain."

Mr. Jehn goes on to say in part:

"We are grateful for the understanding and strong support of the committee in its recent action to increase the levels of aviation career incentive pay (ACIP). This pay operates in tandem with the bonus, and its increase will help stabilize overall aviator turnover."

He also says:

"The Department also understands the committee's desire for greater employment of aviators in operational flying billets, and we will accomplish that goal."

In the context of the last point, you mentioned the importance of adequate monthly flight time for aircrews to maintain operational readiness and pilot retention. In your view, what part does monthly flight time play in aircrew retention?

Admiral DUNLEAVY. From the Navy/Marine Corps team perspective, a number of interrelated factors influence retention including compensation, quality of life, and job satisfaction. Adequate flight time is a critical element of job satisfaction that is unique to aviation. Aviators come into the Navy/Marine Corps to fly. If they perceive that they're not flying enough, their job satisfaction goes down and they are more likely to leave the service.

Today, the greatest factor influencing aviation retention is commercial airline competition. Airlines offer more pay, a more stable family life, and more flight time. FAPA reports the average airline pilot flies 80 hours a month compared to only 25 hours for a naval aviator. So, if an aviator desires to fly more, the airlines offer a viable option. Flight hours are also directly linked to both short- and long-term operational readiness. As the readiness of a unit increases, the competence and confidence of the aviators in that unit increase. Hence, morale and espirit de corps increase to create a more positive retention climate. Additionally, adequate flight hours are critical to safety. Crews are safer when they fly more often.

General PITMAN. My discussions with individual Marine pilots and commanders have convinced me that monthly flight time is a very important factor in aviator retention. I am also convinced that their desire for more flight time is not simply to "go flying." Our missions today are much more complex, and they are in a continual process of change and refinement. It is essential for proper execution of those missions, not only within a specific aircraft community but also in consonance with the other elements of the Marine air ground task force (MAGTF).

Adequate flight time affords the crews an opportunity to refine their skills, to develop changes to tactics and procedures, and to coordinate their efforts with other elements of the MAGTF and with other services. Adequate flight time also develops a level of confidence and precision in the crews that gives them a reasonable assurance of winning if the need to fight arises. There is no substitute for that kind of training.

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-4000

FORCE MANAGEMENT
AND PERSONNEL

'89 APR 19 11:0

Honorable Sam Nunn
Chairman, Committee on
Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The National Defense Authorization Act for Fiscal Years 1990 and 1991 (PL 101-189) requires that the Department annually report the results of aviator bonus programs that were offered in the preceding fiscal year. This report and its enclosures outline program results for the Navy and the Air Force; both offered the retention bonus in Fiscal Year 1989.

As the enclosures point out, the bonus produced additional retention, and it did so with great economy. We estimate that over 300 pilots remained in service who would have left without the bonus; when contrasted with a jet pilot's initial training cost of at least $1 million, the bonus investment of $55 million was a bargain.

We also found that the longer bonus (agreement to remain through 14 years of service) was somewhat more efficient than the shorter bonus (1 or 2 year commitments). The Air Force employed only the longer bonus; the Navy employed both. The Navy's report contrasts the efficiency of the two approaches and points out that the Fiscal Year 1990 program has eliminated the 1-year bonus option. However, this does not suggest elimination of the shorter bonus. The Navy's report also pointed out that the shorter contract--currently the 2 years option--has been instrumental in retaining instructor pilots whose obligation frequently ends midway through the first shore tour (5-8 years of service). The shorter contract mitigates much of the turbulence associated with instructor turnover and saves rotation costs. The Navy's short-term contract objectives for Fiscal Year 1989 were met.

Operating together, the shorter and longer contracts have generated increased retention among Naval aviators. By contrast, the Air Force has employed only the longer contract; that Service has no equivalent (mid-tour) concentration of aviators completing their initial obligation.

The targeting approaches taken by the two Services have proven to be both effective and efficient in managing aviator retention. Our November 1989 report titled "Aviator Continuation Pay (Fiscal Year 1989 Implementation)" laid out the rationale for the current targeting approach of each Service, and the conclusions of that report remain valid.

We are grateful for the understanding and the strong support of the committee in its recent action to increase the levels of Aviation Career Incentive Pay (ACIP). This pay operates in tandem with the bonus and its increase will help stabilize overall aviator retention. However, we believe that the bonus program permits the correction of specific manning problems as they emerge, so it will continue to serve as an important component of our aviator management.

The Department also understands the committee's desire for greater employment of aviators in operational flying billets, and we will accomplish that goal. In fact, the recently enacted revisions to the ACIP qualification criteria require such increased utilization in order for an aviator to continue to qualify for ACIP. That message is clearly out, and our aviators understand it; the institutions that manage their careers understand it as well.

In summary, the Fiscal Year 1989 aviator bonus boosted aviator retention, and it did so efficiently. The shorter bonus, while necessary to correct a specific manning problem in the Navy, was somewhat less efficient than the longer bonus and has been scaled back in the Navy's Fiscal Year 1990 program (the Air Force does not employ the shorter bonus). We remain satisfied with the current targeting approaches employed by each Service. Finally, we have taken action to ensure that the Fiscal Years 1991, 1992, and post-1992 objectives for operational flying duty are accomplished in line with the committee's intent. You have provided us important incentive authorities, and we will manage them with care. I believe that the enclosed Service reports demonstrate that commitment. A similar letter is being sent to the Chairman and Ranking Republican of the House Committee on Armed Services.

Sincerely,

Christopher Jehn

Enclosures:
As stated

cc: Honorable John Warner
Ranking Republican

QUESTIONS SUBMITTED BY SENATOR PETE WILSON

AAAM DEVELOPMENT

Senator WILSON. With the termination of the AIM-54C Phoenix, the Navy no longer has a long range missile in production. How well does the current schedule for the proposed follow-on, the Advanced Air-to-Air Missile (AAAM), reduce risk in our ability to support the outer air battle?

Admiral DUNLEAVY. We accepted the risk as prudent in terminating Phoenix production when considering Phoenix inventories, the known lapse in long range missile production until AAAM arrives, and the current changing threat environment and changing world events.

F/A-18 RADAR UPGRADE

Senator WILSON. As part of the Marine Corps to Navy A-6 conversion plan established last year, the Marines are scheduled to receive additional two-seat F/A-18 replacements. Understanding that in order to provide the air-to-ground delivery capability comparable to the A-6 a radar upgrade is required, what is the status of the upgrade plans?

Admiral DUNLEAVY. The F/A-18 APG-65 radar upgrade went on contract 30 April 1990. Flight test will begin in fiscal year 1992 and IOC is anticipated in the fourth quarter fiscal year 1995.

ASTOVL FIGHTER

Senator WILSON. Admiral Dunleavy and General Pitman, the April 23 edition of Aviation Week and Space Technology states that an advanced short take-off and vertical landing (ASTOVL) aircraft has been suggested as an option for replacement of the F/A-18 and the AV-8B as the next generation fighter. Knowing that the NATF, if requested and funded, would be programmed to replace the F-14, would the ASTOVL have any effect on the NATF decision?

Admiral DUNLEAVY. The ASTOVL concept could have significant operational and tactical advantages for military aviation, especially Navy/Marine aviation in the future. We are studying powered lift technologies to determine their maturity, availability, and general affordability so that an informed decision can be made concerning the best option for the next generation strike-fighter for the Navy. The NATF is expected to fill the role of the next generation air superiority fighter as a replacement for the F-14. We do not see that powered lift research will have any particular affect on the NATF, except possibly that advancing engine and flight control technology will contribute to both efforts.

General PITMAN. Considering that the NATF is still in the conceptual development stage, I think the ASTOVL would be a logical candidate for our future fighter requirements, assuming the technology proves itself. The Marine Corps continues to focus on aircraft that are capable of operating in an expeditionary environment and those that have less dependence on support equipment. The AV-8B has demonstrated that capability, and the ASTOVL appears to be the next logical step.

Senator WILSON. Should we begin such development in lieu of follow-on productions and upgrades to the AV-8B or the F/A-18?

Admiral DUNLEAVY. Naval aviation will require a replacement for the F/A-18 in the 2005 to 2010 timeframe and the AV-8B somewhat sooner. There are several options for what will fill the role of the next generation strike-fighter and we are studying the advantages and disadvantages, as well as the technologies required and employment of each, to determine which will best meet our operational requirements. One way we can guarantee that we are fielding the best systems is to foster promising technologies such as powered lift. In order to make the right decision concerning F/A-18 and AV-8B replacements for the future, we must continue to study promising alternatives and support technology today to keep our options open.

PHOENIX UPGRADE

Senator WILSON. The Navy has spent about $65 million to upgrade the AIM-54C to a C+. In order to capitalize on this investment, I am told that a funding of $30 million in the fiscal year 1991 budget will allow delivery of 180 Phoenix missiles in this new configuration. While awaiting AAAM development, would this "insurance" purchase be cost effective?

Admiral DUNLEAVY. We believe the correct figure to be $103 million to delay delivery of the last 180 Phoenix missiles. Accepting the suggested configuration update would be premature and conceivably unaffordable in the long range.

A-12 ALTERNATIVES

Senator WILSON. In light of perceived changes in threat and resulting fiscal pressures, do you remain convinced that A-12 production represents the better option, vis-a-vis production of an upgraded A-6?

Admiral DUNLEAVY. Yes. The stealth characteristics of the A-12 make it far superior to an upgraded A-6.

A-12 VARIANTS

Senator WILSON. Will the A-12 offer replacement opportunity for other than the A-6, for instance the ATS or some portion of the NATF mission; and if so, what are some of the advantages of this approach?

Admiral DUNLEAVY. The opportunity is certainly there for A-12 variants. It is a bit premature to speculate what form those variants would take. We are looking at various options involving the A-12 in an attempt to capitalize on its stealth characteristics. Additionally, the advantage of multi-mission aircraft allows better use of the finite deck space and reducing the number of different airframes in the carrier air wing.

V-22 AFFORDABILITY

Senator WILSON. Affordability has been called the key issue in the V-22 debate. How does its cost compare to the alternative of UH-60 and CH-53 helicopters? How does its effectiveness compare?

General PITMAN. Based on what I have seen of the cost and operational effectiveness analysis (COEA), the V-22 is less costly over the life cycle than the CH-53/CH-60 alternative. In terms of operational effectiveness, the V-22 is 1.3 to 6 times more operationally effective than any of the alternatives, depending upon the mission scenario.

A-12/ATA COMMONALITY

Senator WILSON. The Air Force has recently testified, as did the Secretary of Defense, that the A-12/ATA program will not become another TFX. What is your view of the commonality being built into this program, and what do you feel the chances are for a successful ATA?

Admiral DUNLEAVY. The Navy A-12 and the Air Force ATA will be virtually the same aircraft with four minor exceptions for unique mission enhancements. These changes are not considered to be high risk. The advantages are considerable cost savings to both the Air Force and the Navy over developing two separate aircraft and lower life cycle costs due to logistics commonality.

AAAM REQUIREMENTS

Senator WILSON. What is the status of the AAAM development, and how important is this missile of the Navy?

Admiral DUNLEAVY. AAAM is in the second year of a competitive demonstration and validation phase with two contractor teams. AAAM is extremely important to the Navy for both maritime and overland air superiority. It will provide both the seeker improvements and kinematic performance required to ensure a first shot, first kill for all of our air-to-air capable platforms.

Senator WILSON. Are there alternatives should AAAM experience development problems or schedule slips?

Admiral DUNLEAVY. In selecting our current program, we evaluated other alternatives and selected what we felt was the most viable option. If necessary, we will rely on our medium range missiles as an interim measure. Of course, we will continue to carefully manage the existing Phoenix inventory.

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

A-6 CONVERSION

Senator THURMOND. In the transition from the A-6 to the F/A-18, will the Marine Corps be able to achieve any personnel and/or operational savings because of this conversion? If so, could you quantify those savings?

General PITMAN. The transition from the A-6 to the F/A-18 will result in a modest savings in manpower. Because the A-6 is a very manpower-intensive air-

craft, we have had to man those squadrons at a higher percentage than other squadrons. As the transition progresses, those manpower savings will be redistributed to other squadrons which have been operating at reduced manning levels.

Although I cannot quantify the operational savings, I am convinced that we will realize some cost avoidance through efficiencies brought on by increased commonality in our aircraft fleet. There will also be some economy attributable to operating a more modern aircraft whose production and spares lines are still operating.

CH-53 MULTI-YEAR

Senator THURMOND. In your statement you indicate that you feel strongly that the CH-53 is a prime candidate for multi-year procurement. Could you tell us what you believe the cost savings are by going multi-year and why it should be considered by the Navy for a mult-year procurement?

General PITMAN. Our previous multi-year procurement of CH-53Es saved the Government $92.8 million, or 12.8 percent over an annual procurement. A 4-year multi-year procurement of 10 CH-53Es and 4 MH-53Es or 14 CH-53Es would net savings of approximately 12.2 percent ($119 million) over an annual procurement of the same quantities.

Although the Navy and the Marine Corps have a firm requirement for these aircraft, the CH-53 often becomes the victim of the budget axe because of the relatively low number of aircraft being procured. The previous multi-year procurement was extremely successful, and it saved the Department of the Navy a considerable amount of money. I believe that a new multi-year procurement would provide the same advantages.

CH-46

Senator THURMOND. The results of the congressionally-mandated cost and operational effectiveness on the replacement for the medium lift aircraft will be available in the near future. Based on the results, the Corps will then be able to pursue the development of its next generation of lift aircraft. Once the results of the study are announced, how soon do you expect to be able to make a decision on aircraft the Corps wants? When do you hope to begin procurement?

General PITMAN. Once the decision has been made by the OSD concerning our medium lift replacement aircraft, the Marine Corps will be able to select an alternative in relatively short order. Since the termination of the V-22, we have reviewed our options in this critical mission area. Because we were directed to wait until the cost and operational effectiveness analysis (COEA) was completed before pursuing an alternative, no firm decisions have been made to date.

The question of when we would enter production depends upon the alternative selected, but we would have to enter production as soon as possible in order to avert a serious shortfall in capability in our medium assault force.

PRIMARY MISSION READINESS

Senator THURMOND. The funding request for the Navy's flying hour program meets 87 percent of your primary mission readiness goal. You indicate in your statement that this is short of your peacetime goal of 88 percent and that further reductions would impact on the safety and readiness. Since the Navy's flying hour program over the past 2 fiscal years has been funded at the same level, what has been the cumulative effect on your readiness?

Admiral DUNLEAVY. The Department of the Navy's flying hour program is based on a training and readiness (T&R) matrix of minimum required training events necessary for 100 percent combat readiness for deploying units, and is tied to resource requirements including flying hours. Any amount below goal limits a unit's capability to complete the T&R matrix, thereby reducing mission readiness since all required training events are not met. The cumulative effect of not being funded to our peacetime goal would be a reduction in overall readiness due to a unit's inability to train for all assigned missions; i.e., anti-air warfare (AAW), strike warfare (STW), anti-submarine warfare (ASW), anti-surface warfare (ASUW), mine warfare (MIW), amphibious warfare (AMW), electronic warfare (EW), etc. The result of current flying hour funding is flight crews are trained to a minimum level of combat readiness. Additional flight hour funding would result in flight crews that are more confident and more satisfied. Funding at any level below 87 percent would decrease flight crew training below acceptable safety levels. It would also reduce, over time, the overall experience level of our aviators.

Senator THURMOND. What does the 1 percent difference in actual and goal equate to in terms of flying hours and dollars?

Admiral DUNLEAVY. It would cost $18.0 million to fund the 10,561 hours required to raise primary mission readiness (PMR) to the peacetime goal of 88 percent in fiscal year 1991.

ASW

Senator THURMOND. Considering the problems associated with the P-7 contract, what interim steps is the Navy considering to assure itself of a continuous modern sophisticated anti-submarine capability?

Admiral DUNLEAVY. The Navy is continuously modernizing its maritime patrol aircraft capability. We are currently retrofitting state-of-the-art P-3C update III sensor equipment into baseline P-3Cs. In addition, as soon as the follow-on update IV sensor suites are available, we will start retrofitting them into our P-3C update I and II aircraft.

AIR SUPERIORITY

Senator THURMOND. The delay in the production of the ATF will force the Navy to rely longer than anticipated on the F-14. Considering the advancements in technology being demonstrated by the Soviet aviation industry and the age of the F-14, are we placing at risk the air superiority we have relied on over the past 40 years?

Admiral DUNLEAVY. The F-14D represents the most modern technology flying today and possesses the inherent growth potential to pace the threat until the NATF can be introduced. The variable geometry design is well-suited for naval requirements and is as applicable today as it was 20 years ago.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

MAVERICK

Senator MCCAIN. President Bush recently issued a policy paper, "National Security Strategy of the United States," which stated that the United States "will develop weaponry needed for the special demands of conflicts in the Third World." Such conflicts require surgical strike capability. How will the Navy provide this capability without adequate stocks of the Maverick?

Admiral DUNLEAVY. The majority of conflicts in the Third World may require significantly less precision-guided weapons due to the decreased threat size anticipated in crisis and limited objective warfare (CALOW) and medium intensity conflict (MIC) scenarios. There will be sufficient inventory of the laser and IR Maverick to conduct limited objective warfare in a fairly robust scenario. Fiscal constraints dictate termination whenever weapons programs meet stock objectives sufficient to meet combat requirements.

Senator MCCAIN. A recent Congressional Budget Office report, "Options for Improving Munitions Sustainability," examined 21 munitions programs, including the Maverick, that military commanders cited as critical to their warfighting capability. How can the Navy terminate production of such a crucial system as the Maverick when stocks are still far below the level needed as detailed in the CBO report?

Admiral DUNLEAVY. Recent changes in the world political picture have reduced the requirements for all weapons to some degree. Maverick stocks will be sufficient to meet the warfighting scenarios anticipated in the 1990s.

Senator MCCAIN. The standoff land attack missile (SLAM), a "high priority" Navy program, uses the IR Maverick Seeker. How does the Navy intend to procure Seekers for SLAM if the IR Maverick production line is closed?

Admiral DUNLEAVY. Maverick Seekers for the SLAM missile are contractor furnished equipment (CFE) procured by the McDonnell Douglas Missile Systems Company. Since the last SLAM buy will be 1 year later than the last Maverick, there will be no break in IR Seeker production. Production problems could occur if SLAM missiles were procured after fiscal year 1991.

Senator MCCAIN. The IR Maverick is effective against nearly 90 percent of the targets identified on the Navy's target list. In the current political environment, is the Navy really confident enough to totally stop production of the only weapon capable of attacking such a broad target spectrum?

Admiral DUNLEAVY. As I have stated previously, the majority of conflicts in the Third World may require significantly less precision-guided weapons and there will be sufficient inventory of the laser and IR Maverick for those anticipated scenarios.

Senator McCAIN. During the nearly 10-year period until the improved advanced interdiction weapon system (AIWS) becomes available, the Navy has suggested the use of the Skipper and the Walleye to supplement its limited inventory of the Maverick. The Skipper is a laser-guided weapon with limited night attack capability. The Walleye is a TV-guided weapon that has virtually no capability at night. Without the Maverick, what will the Navy use for precision night strike?

Admiral DUNLEAVY. The AIWS IOC may be much sooner than the 10-year period alluded to in the question. While waiting for the AIWS, a combination of all the current weapons in the inventory will be used with aircraft systems and night vision/targeting to provide night strike capability.

Senator McCAIN. Won't the fact that the Skipper requires close-in designation by laser increase the vulnerability of the designating aircraft?

Admiral DUNLEAVY. The designating aircraft or ground unit for laser-guided weapons is always vulnerable to some degree. However, there are tactics that can be employed to reduce the vulnerability in most anticipated scenarios.

Senator McCAIN. We understand that the 2,400 pound version of the Walleye is too heavy to be carried by the Marine Corps AV-8B. Without the Maverick, won't the Marines experience a critical shortage of precision-guided weapons for close air support?

Admiral DUNLEAVY. There are sufficient AV-8B capable Mavericks and LGBs in the inventory to meet anticipated USMC fixed-wing CALOW/MIC precision-guided weapon warfighting requirements until the arrival of the AIWS.

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General PITMAN. The Department of the Navy recently concluded a study which determined that there were sufficient precision-guided munitions (Maverick and laser-guided bombs) in the inventory to meet our requirements for low- and mid-intensity conflicts. This conclusion is predicated upon the introduction of the advanced interdiction weapons systems (AIWS) during the mid- to late-1990s. The Walleye and IR Maverick are not well suited for CAS since the weapons cannot distinguish between enemy and friendly weapons systems.

Of more immediate concern in the area of precision-guided munitions (PGMs) is the termination of the Hellfire and the lack of a shipboard-compatible TOW missile. With those weapons, our helicopters can conduct close-in fire support and relieve some of the pressure on the heavy demand for CAS. According to the study cited above, the shortfall in Hellfire and TOW is much more critical than the shortfall in fixed-wing PGMs.

Senator McCAIN. We also understand that the extended range version of the Walleye has large wings that create clearance problems on the F/A-18. Without the Maverick, what can the Navy and the Marine Corps use to provide precision strike capability for the F/A-18?

Admiral DUNLEAVY. There are sufficient F/A-18 capable Mavericks and LGBs in the inventory to meet anticipated USMC fixed-wing CALOW/MIC precision-guided weapon warfighting requirements until the arrival of the AIWS.

Senator McCAIN. We also understand that the extended range version of the Walleye has large wings that create clearance problems on the F/A-18. Without the Maverick, what can the Navy and the Marine Corps use to provide precision strike capability for the F/A-18?

General PITMAN. Because the Walleye is unable to distinguish between enemy and friendly targets, it has not been used by the Marine Corps for CAS. Until the advanced interdiction weapons system (AIWS) is introduced, the Marine Corps will continue to rely on the laser Maverick and laser-guided bombs for precision strike missions. Both of these weapons are compatible with the F/A-18.

Senator McCAIN. The Navy's original inventory requirement for the Maverick exceeds 10,000 missiles. With the termination of the program after fiscal year 1990, the Navy will have only 2,100 Mavericks. How can the Navy expect to sustain operations for a prolonged period with such a low level of critical strike weapons?

Admiral DUNLEAVY. The Navy's total inventory of Maverick missiles (AGM-65E/F) will be approximately 4,100. The changing threat environment in light of world events has indicated a reduction to some degree. Maverick stocks will be sufficient to meet the warfighting scenarios anticipated in the 1990s.

AIM-54C UPGRADE

Senator McCAIN. The Secretary of Defense recently reported to the Armed Services Committee that the AIM-54C will approach obsolescence by the end of the decade. We understand the Navy made a considerable investment in the AIM-54C program to enhance its capabilities well into the next century. Are you now planning to not incorporate the changes you have developed?

Admiral DUNLEAVY. We are considering various upgrades to our Phoenix inventory and will come forward with the option chosen with next year's budget.

Senator McCAIN. How can the AIM-54C be called "obsolete" when you have these changes ready for incorporation?

Admiral DUNLEAVY. The Phoenix will be approaching obsolescence as we enter the next century. The AAAM, in development now, is required to achieve the kinematic and multi-spectral guidance performance spread over all of our air-to-air capable platforms, and necessary to meet and beat the next generation threat.

Senator McCAIN. Why did the Navy invest over $65 million in the AIM-54C upgrade program and then decide to terminate production?

Admiral DUNLEAVY. In a period of declining resources, difficult decisions must be made if we are to ensure our viability against a technologically advanced threat. Termination of the Phoenix was deemed an acceptable risk to ensure resources were available for higher priority developments in light of the current changing threat environment and world events.

Senator McCAIN. How does the Navy justify the expense of developing a new air-to-air missile (AAAM) when off-the-shelf improvements are available for the AIM-54C?

Admiral DUNLEAVY. Projected advances in threat capability require an increased kinematic capability and a multi-spectral guidance to ensure first shot, first kill capability performance. We must have that capability in all of our air-to-air capable platforms to ensure our success in all arenas: blue water, brown water, or overland. The AAAM is the weapon that will provide the required capability.

CVBGS

Senator McCAIN. If force levels are reduced and only 12 CVBGs are required as suggested by Secretary Cheney, the Navy still has only enough Phoenix missiles to properly support eight CVBGs. We understand that 12 CVBGs won't be at sea continuously, and the Navy can support the deployed requirement with the existing missile inventory. The logistical impact, however, associated with continuously moving an inadequate inventory around the world has its own costs. Is there an impact to the expected service life of the missiles through the constant movement between oceans?

Admiral DUNLEAVY. There are no known adverse impacts on the service life of missiles due to normal logistic movement.

Senator McCAIN. Since approximately 25 percent of the inventory is continuously in the logistics pipeline, has the Navy weighed the expense of supporting this large pipeline with the expense of procuring enough missiles to support more than eight CVBGs?

Admiral DUNLEAVY. Logistics is an integral part of inventory management in all of our programs. That methodology has proven to be most cost-effective over the years. We can loadout all of our deployable carriers at projected inventory levels with some resupply still available. This is a prudent risk considering available fiscal resources, the changing threat, and the world environment, as well as requirements to field more advanced systems to meet the next generation threats.

Senator McCAIN. Secretary Cheney has recently announced a 2-year slide in the start of production for the ATA and the ATF/NATF. How does this delay in production affect the Navy's ability to maintain enough F-14 and A-6 aircraft to equip 14 CVBGs?

Admiral DUNLEAVY. A delay in A-12 production could be managed with our existing A-6 inventory for a brief period, but we would pay the price of that delay later. A-6 retirements accelerate rapidly after the year 2000. To impose an unnecessary delay on the A-12 would exacerbate our medium attack shortfall in the mid- and long-term and adversely impact the Navy's power projection capability. In the case of the F-14, the inventory is temporarily manageable as presented in the major aircraft review (MAR). However, any further delay in introduction of the NATF will have an unsatisfactory impact on the fighter inventory.

Senator McCAIN. How does this change if the Navy goes to 12 CVBGs?

Admiral DUNLEAVY. Secretary Garrett has consistently stated the Navy's intention to maintain 14 deployable CVBGs. We have formulated our plans/requirements

around this force level. Should future consideration be given to reducing the force levels, we will then evaluate IOC slippage in that context.

Senator MCCAIN. How much additional delay can the Navy accept in the ATF/NATF before it would be forced to reopen the F-14 production line?

Admiral DUNLEAVY. The F-14 inventory will be manageable given the 2-year procurement delay for the NATF called for in the major aircraft review. However, any significant further delay in the NATF program will result in unacceptable fighter inventories.

[Whereupon, at 4:07 p.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

29-572 (204)